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For Doctors and their Patients

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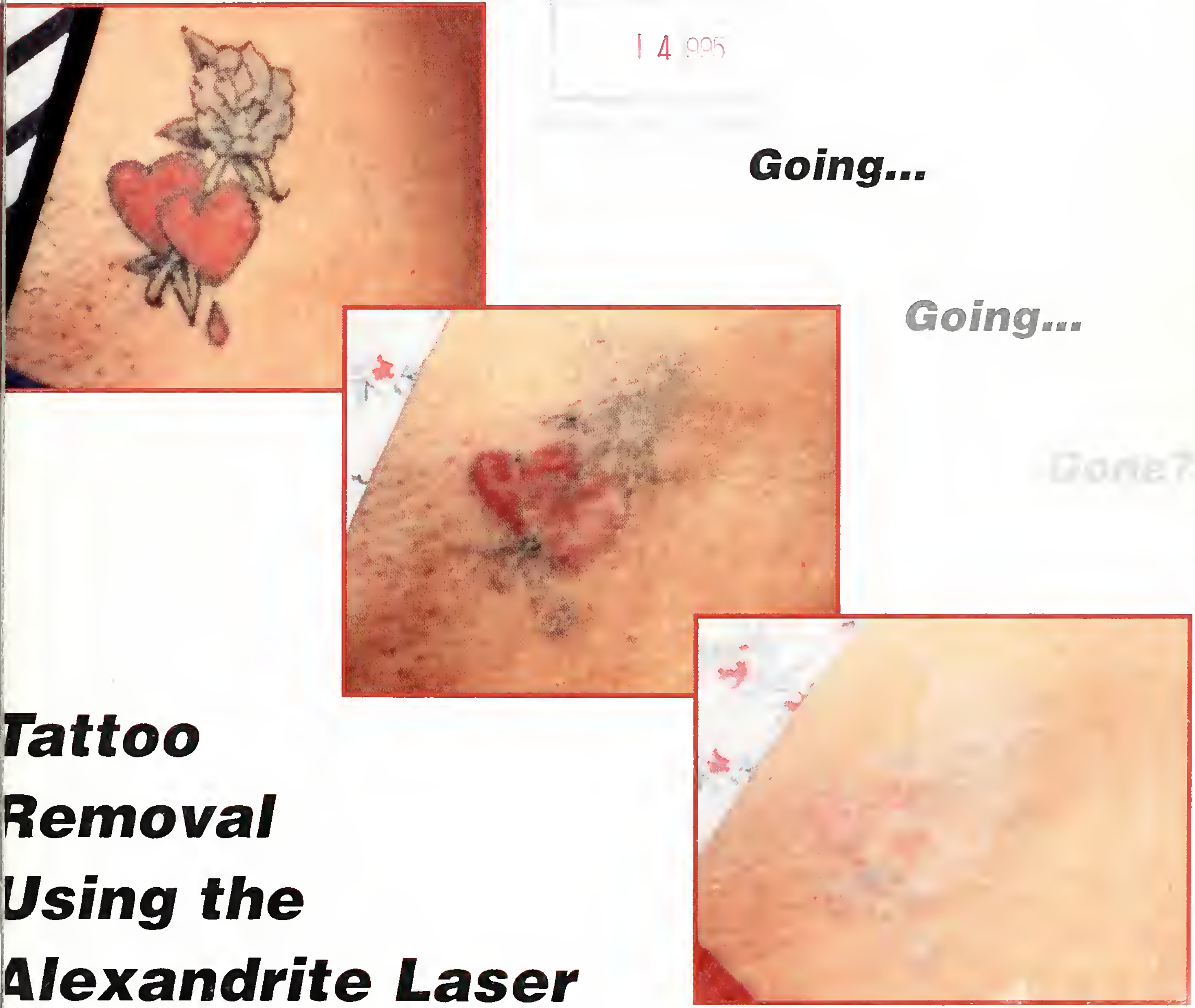

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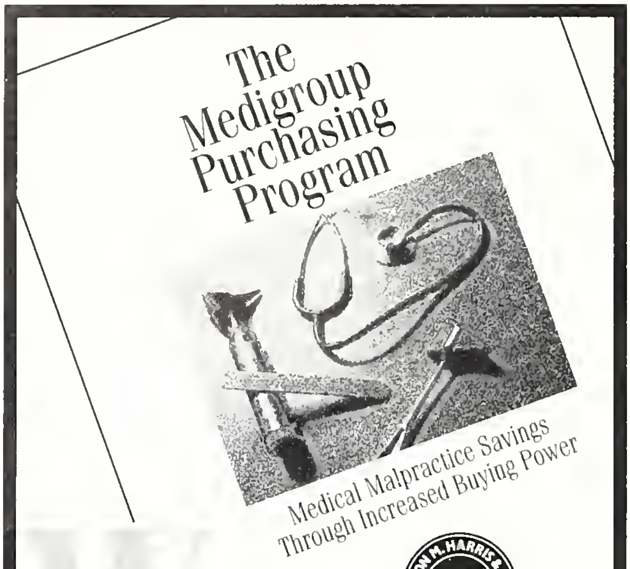
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NORTH CAROLINA
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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / July 1995, Volume 56, Number 7

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Letters to the Editor

A Timely Review

To the Editor:

The May issue of the *North Carolina Medical Journal* was certainly a helpful and timely review of many occupational medicine problems, and I commend the efforts of each author in preparing the material for this publication.

I especially appreciated Dr. Ricky Langley's work as guest editor. I'm sure that putting together such a useful publication covering so many different topics was no small job.

David Adcock, MD, MPH
Professor, Health and Safety Office
University of South Carolina
School of Medicine
Columbia, SC 29208

Editor's note: A copy of this letter was sent to Dr. Langley, our May guest editor, who forwarded it to us. We publish it here with Dr. Adcock's permission.

Sleeping On the Job

To the Editor:

I commend you on an exceptional May special issue devoted to occupational health. Several articles addressed concerns specific to various industries, yet a notable exception was the lack of *any* reference to the prevalence of sleep disorders in our workforce.

"Don't ask, don't tell" appears to be a common approach to both Occupational Health and Sleep Medicine. Many of the problems highlighted in the articles (workplace accidents, worker productivity and motivation, psychosocial problems) can be traced to undiagnosed sleep difficulties that impair performance on and off the job. These difficulties are a significant factor in industries that utilize shift workers.

Perhaps we can look forward to a special issue regarding sleep disorders. After all, we do spend nearly a third of our lives in the arms of Morpheus!

O'Neill F. D'Cruz, MD
UNC School of Medicine
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Drs. Gammon and Langley respond:

It's true that sleep disorders, as well as work schedules that necessitate sleep deprivation, have a significant effect on employees' mental and physical well-being and subsequent job performance. Since shift work and night work are disharmonious with the human circadian system, both physiological and psychosocial problems are more likely for shift workers.[1] Sleep deprivation can result in decreased reaction time, lowered vigilance, emotional changes, and perceptual and cognitive distortions, all of which can effect work performance.[2] This is particularly critical for individuals who work in safety-sensitive jobs such as law enforcement officers, firefighters, military personnel, airline pilots, and health care workers.

Accidents due to sleepiness are also a serious problem in the workplace. They can have widespread economic impact in addition to the more profound loss of life or well-being.[3] And when on-the-job cognitive tasks are particularly demanding, there is even more potential for decreased job performance and moodiness, resulting in greater risk of errors.

We concur that both sleep disorders and sleep deprivation have a profound impact on workers' well-being and productivity. Psychosocial problems, on-the-job accidents, and impaired job performance and motivation can be caused by sleep disorders or sleep deprivation. Occupational physicians need to explore sleep disorders and disruptive sleep schedules in more depth. Managers, workers, and physicians need to generate effective solutions to work demands that create impaired sleep or exacerbate sleep disorders.

Patricia J. Gammon, PhD, Counselor
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Transfer Patient, Transmit Information

To the Editor:

Those of us who admit patients to hospitals are under pressure to discharge them as quickly as possible. Consequently, many of our older patients with multiple problems are admitted into nursing homes for further skilled care before they can go home. Hospital and nursing home social workers do a wonderful job finding nursing home beds, counseling patients and families, and facilitating transfers. Nurses do their part by filling out transfer forms that are of great help to nursing home nurses who will then care for the patients. Physical therapists often send reports that help with rehabilitation continuity.

The main problem is the transfer of medical information. Very often no discharge summary is sent, so the physician who receives the patient at the nursing home has no good record of what happened to the patient in the hospital, what the patient's condition was at the time of transfer, and what further course of therapy is suggested. Nurses and social workers try to compensate for this by sending copies of progress notes—most of which are illegible—and a huge volume of lab and x-ray reports.

This problem exists for several reasons. Physicians no longer personally facilitate patient transfers, so they have forgotten their obligation to the patient and the physician who receives the patient. Social workers encounter resistance from physicians who say their hospitals don't require a discharge summary for 10 days after discharge. Physicians view the discharge summary as just more paperwork. But they wouldn't think of transferring a patient to another hospital without proper medical records. The tendency, for those of us who work in nursing homes, is to perceive the referring physician as uncaring because the patient is old and disabled. I don't think that is true. The lack of physician involvement in the process is the main problem—out of sight, out of mind. Some may think that only nursing care—not medical care—can be dispensed in nursing homes. Whatever the reasons, the lack of information from hospitals seriously hampers timely assessment and treatment of hospital patients transferred to nursing homes.

A copy of the initial history and physical and a discharge summary are really all the medical information needed. The patient's hospital physician must personally see that this information is transferred to the nursing home before or as the patient leaves the hospital. Anything less is neglect.

James H. Sanders, Jr., MD
Brevard Family Practice
Bldg. 1, Medical Park Drive
Brevard, NC 28712

Dr. Neelon comments:

Nursing homes in Durham refuse to accept a patient in transfer from a hospital unless they are accompanied by a full discharge summary. It sometimes taxes the system to get the summary done in time, but it surely avoids the problems that Dr. Sanders is talking about.

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Recent Infant Mortality Trends in North Carolina

Robert E. Meyer, PhD, MPH, Paul A. Buescher, PhD, and Kevin Ryan, MD, MPH

In 1992, there were 9.9 deaths per 1,000 live births in North Carolina. This placed the state 43rd in the nation in infant mortality. Four years earlier, in 1988, North Carolina had ranked 49th, with a mortality rate of 12.6. The data from 1988 prompted considerable concern and provided the impetus for programs to improve maternal and child care. These improvements included expansion of Medicaid coverage for pregnant women, statewide coordination of maternity care, and several legislative initiatives.

Despite the apparent improvement in mortality rate, the overall effect of these interventions on the state's infant mortality rate has not been fully studied. Therefore we examined recent trends in cause- and birthweight-specific infant mortality to determine the contribution of each component to the overall decline in the infant death rate. Analysis of changes in mortality within specific birthweight groups or by cause of death allows us to make inferences about which interventions have the greatest impact on infant mortality. It can also help identify areas most in need of additional preventive efforts to sustain the decline.

Methods

We used data from computer-matched live birth and infant death certificates to compare the mortality rates of infants born in 1987-1988 with those of infants born in 1991-1992. We chose these two periods because they had the highest and lowest two-year infant mortality rates, respectively, since the mid-1980s. Because our mortality data are based on the infant's year of birth rather than year of death, the mortality risks differ slightly from those published in the standard North Carolina vital statistics reports. In addition, mortality data for the 1992 birth cohort are based on provisional files and therefore may differ slightly from actual infant mortality risks for this birth cohort. Because of the disparity in infant mortality by race, we carried out separate analyses for white and for minority infants (about 92% of the minority infants were black).

We express mortality risk as the number of infant deaths per 1,000 live births. Birthweight-specific mortality risks (risk of death for infants of a given birthweight) were calculated for very low birthweight (500-1,499 g), moderately low birthweight (1,500-2,499 g) and normal birthweight ($\geq$2,500 g) infants. A method for partitioning differences in mortality rates was used to determine the percentage decline in overall infant mortality that was attributable to improved survival in specific birthweight categories.[1]

Cause-specific mortality risks (risk of death from a specific cause) were calculated by grouping ICD-9 codes for underlying causes of death. For each grouped cause of death, the effect on the total reduction in infant mortality was determined by dividing the absolute change in the mortality risk *for that cause* by the absolute decline in overall mortality.

Results

Among white infants, the mortality risk declined by 21% between 1987-1988 and 1991-1992 (from 9.4 to 7.4 per 1,000 live births). For minority infants, the mortality risk declined by 15% (from 18.3 to 15.6). A two-fold disparity in mortality between minority and white infants persisted during both study periods.

Trends in low birthweight. Table 1, next page, shows the distribution of birthweights, by race, for live-born infants delivered in 1987-1988 and 1991-1992. The rate of low birthweight infants among both whites and minorities increased slightly between the two periods: for whites, the increase was 7% and for minorities, 6%. There was an increase in the rate of birth of both very low birthweight and moderately low birthweight infants of each race; the percentage of babies born weighing less than 500 g remained the same for both races.

The rate of low birthweight was twice

Drs. Meyer and Buescher are with the State Center for Health and Environmental Statistics, and Dr. Ryan is with the Division of Maternal and Child Health, NC Department of Environment, Health, and Natural Resources, Raleigh.

as high for minorities than for whites in both time periods. At the extreme low end of the birthweight spectrum, the racial difference is even more pronounced. Among minorities, the percentage of very low birthweight infants delivered was more than 2.5 times higher than that of whites, and the percentage under 500 g was four times higher.

Trends in birthweight-specific infant mortality. Table 2, below, shows infant mortality risks by race and birthweight for infants born in 1987-1988 and in 1991-1992. The far right-hand column of the table gives the percent of the total decline in infant mortality attributable to improved survival among infants in a particular birthweight category.

Among whites, the decline in infant mortality rate from 1987-1988 to 1991-1992 was similar for all weight groups except infants weighing less than 500 g (who account for only 0.1% of live-born white infants, but for about 12% of all white infant deaths). For all other birthweight groups, mortality risks of white infants declined (-23% for normal, -26% for moderately low, and -24% for very low birthweight infants). Because it is the largest group, improved survival of normal birthweight infants accounted for 42% of the overall decline in white infant mortality; improved survival of very low and moderately low birthweight infants accounted for 37% and 19% of the overall decline, respectively.

Minority infants experienced similar substantial declines in birthweight-specific mortality except for infants weighing less than 500 g (who comprised 0.4% of live births to minority women, but accounted for more than 20% of infant deaths). The decline in mortality among normal, moderately low, and very low birthweight minority infants was slightly less than that seen for whites (-20%, -24, and -20%, respectively). Among minorities, improved survival of 500-1,499 g infants accounted for the greatest proportion (46%) of the total decline in mortality; improved survival of normal birthweight infants accounted for 33% of the decline and moderately low birthweight infants, 17%.

Trends in birthweight-specific neonatal and postneonatal mortality. Table 3, next page, shows risks of neonatal and postneonatal mortality by race and birthweight group for infants born in 1987-1988 and 1991-1992. For both whites and minorities, more than 80% of the deaths in infants weighing 500-1,499 g occurred during the neonatal period, while for normal birthweight infants, most deaths occurred during the postneonatal period. Between 1987-1988 and 1991-1992, mortality declined substantially in all groups, except that the risk of neonatal death in normal birthweight minority infants remained essentially unchanged. Normal birthweight minority infants showed no decline in any cause of death except birth defects, which declined slightly. Even this, however, was offset by an increase in infection-related deaths (data not shown). In all groups except for moderately low birthweight minority infants, the rate of decline in postneonatal mortality exceeded that in neonatal mortality.

Table 1. Percentage of resident live births by birthweight and race, NC, 1987-1988 and 1991-1992 birth cohorts

	White		Minority	
Birthweight (g)	1987-1988	1991-1992	1987-1988	1991-1992
<2,500	6.0%	6.4%	12.0%	12.7%
<500	0.1%	0.1%	0.4%	0.4%
500-1,499	0.9%	1.0%	2.4%	2.6%
1,500-2,499	5.0%	5.3%	9.3%	9.8%
≥2,500	94.0%	93.6%	88.0%	87.3%

Table 2. Birthweight-specific infant mortality risks by race, NC, 1987-1988 and 1991-1992 birth cohorts

	Number of deaths		Mortality risk*		Percent	Contribution to
Birthweight (g)	1987-1988	1991-1992	1987-1988	1991-1992	change	total decline
White						
<500	129	141	969.9	933.8	-4%	2%
500-1,499	398	329	322.8	244.8	-24%	37%
1,500-2,499	190	163	29.4	21.9	-26%	19%
≥2,500	472	392	3.9	3.0	-23%	42%
Minority						
<500	226	232	965.8	935.5	-3%	4%
500-1,499	414	386	286.5	228.0	-20%	46%
1,500-2,499	135	118	23.8	18.2	-24%	17%
≥2,500	325	278	6.0	4.8	-20%	33%

*Infant deaths per 1,000 live births.

Note: Percentages rounded off to whole integers and may not match exactly those calculated from the mortality risks presented in table.

Note: Infants of unknown birthweight excluded.

Table 3. Birthweight-specific neonatal and postneonatal mortality risks, by race, 1987-1988 and 1991-1992 birth cohorts

Birthweight (g)	Number of deaths 1987-1988	Number of deaths 1991-1992	Mortality risk* 1987-1988	Mortality risk* 1991-1992	Percent change
White					
500-1,499					
Neonatal	340	279	275.8	207.6	-25%
Postneonatal	58	50	64.9	46.9	-28%
1,500-2,499					
Neonatal	109	101	16.9	13.6	-19%
Postneonatal	81	62	12.7	8.5	-34%
≥,2500					
Neonatal	193	166	1.5	1.2	-20%
Postneonatal	279	226	2.2	1.6	-25%
Minority					
500-1,499					
Neonatal	342	321	236.7	189.6	-20%
Postneonatal	72	65	65.3	47.4	-27%
1,500-2,499					
Neonatal	74	58	13.0	8.9	-32%
Postneonatal	61	60	10.9	9.3	-14%
≥2,500					
Neonatal	94	99	1.7	1.7	-2%
Postneonatal	231	179	4.3	3.1	-28%

*Infant deaths per 1,000 live births.

Note: Percentages rounded off to whole integers and may not match exactly those calculated from the mortality risks presented in table.

Note: Infants of unknown birthweight excluded.

Trends in cause-specific infant mortality. Table 4, next page, shows the cause-specific infant mortality risks, by race, for 1987-1988 and 1991-1992. Among whites, birth defects were the leading cause of infant death, followed by the combination of prematurity/low birthweight/respiratory distress, "other perinatal conditions," and Sudden Infant Death Syndrome (SIDS). The trends in cause-specific mortality over time show that a decrease in risk of death from birth defects accounted for 27% of the total decline in white infant mortality, a greater percentage than any other cause. Yet despite this decrease, birth defects remained the leading cause of death for white infants. Decreased mortality due to respiratory distress accounted for 14% of the overall decline, but there was little change in other deaths related to prematurity/low birthweight.

For each cause of death, the infant mortality risk for minorities was higher than that of whites (Table 4, next page). Among minority infants, the leading causes of death were prematurity/low birthweight, "other perinatal conditions," birth defects, and SIDS. The mortality risk for SIDS decreased rather dramatically, accounting for 23% of the overall decline in mortality among minorities. A decrease in mortality attributed to "other perinatal conditions" accounted for 31% of the decline, while decreased mortality due to respiratory distress and birth defects contributed to 15% and 13%, respectively.

One disturbing trend among minority infants was an increase in risk of death due to preterm delivery and low birthweight, a risk that parallels an increasing percentage of minority infants born weighing 500-1,499 g. This increase in mortality from prematurity/low birthweight hindered by 17% the rate of decline in overall infant mortality—that is, had the risk of death from prematurity or low birthweight remained the same between 1987-1988 and 1991-1992, the overall infant mortality risk for minorities in 1991-1992 would have been 15.1 instead of 15.6.

Discussion

This study demonstrates that the decline in infant mortality in North Carolina between 1987-1988 and 1991-1992 was a broad-based phenomenon. The fact that improvements occurred among both whites and minorities, in nearly all birthweight groups and for a variety of causes, suggests that no single intervention or group of interventions was wholly responsible for the overall decline in infant mortality. It is more likely that the strategies used all contributed incrementally to decrease mortality. Several issues emerge from our analysis.

As in other states, North Carolina's reduced infant mortality is related to improvements in birthweight-specific survival rather than to a reduction in the rate of low birthweight.[2-4] Improved survival of very low birthweight infants accounted for about 40% of the total decline in the state's infant mortality rate, a notable finding given that less than 2% of all births fall into this weight group. When such improvements in birthweight-specific mortality are observed, we tend to ascribe them to the high technology "rescue" of preterm and other critically ill newborns in neonatal intensive care units. However, as our study demonstrates, improvements in birthweight-specific mortality in North Carolina were not confined to the smallest babies; substantial improvements occurred among moderately low and normal birthweight infants. These improvements may be due to such factors as better nutrition, preconception risk reduction, and parenting education, as well as improved obstetrical and pediatric care.

In terms of cause-specific mortality, decreases in the risk of death from several causes contributed to the decline in infant mortality. Among whites, a reduced risk of death from congenital malformations was the most important (and largely due to a decrease in deaths due to cardiac defects, a finding that is difficult to explain). Following a stable period during most of the 1980s, in 1989, the risk of death from congenital malformations declined for both white and minority infants by at least 20% and has remained relatively constant since. Although increased use of prenatal diagnostic techniques may have decreased mortality due to neural tube defects and chromosomal anomalies, they would have less effect on deaths due to congenital heart disease. The state's birth defects surveillance program shows no decline in the birth prevalence of cardiac defects since 1987-1988, but because of the poor ascertainment of these defects by the surveillance program, these data are hard to interpret. We need better information about the occurrence of cardiac defects and other congenital malformations in order to identify the factors related to these trends and to develop additional strategies to prevent and treat birth defects.

> "...improvements in birthweight-specific mortality...may be due to better nutrition, preconception risk reduction, and improved obstetrical and pediatric care."

Among both whites and minorities, we noted a substantial reduction in mortality from respiratory distress syndrome and other respiratory complications. The availability of surfactant, which came into widespread use during the latter part

Table 4. Cause-specific infant mortality risks by race, NC, 1987-1988 and 1991-1992 birth cohorts

Cause of death	Number of deaths 1987-1988	Number of deaths 1991-1992	Mortality risk[*] 1987-1988	Mortality risk[*] 1991-1992	Percent change	Contribution to total decline
White						
Birth defects	271	220	2.1	1.6	-25%	27%
Prematurity/low birthweight	121	124	0.9	0.9	-5%	2%
Respiratory distress/BPD[**]	115	88	0.9	0.6	-29%	14%
Sudden infant death syndrome	155	149	1.2	1.1	-11%	7%
Labor/delivery complications	33	24	0.3	0.2	-33%	4%
Injuries	42	31	0.3	0.2	-32%	5%
Infection	83	63	0.6	0.5	-30%	10%
Other respiratory conditions	92	72	0.7	0.5	-27%	10%
Other perinatal conditions	183	162	1.4	1.2	-18%	13%
Other known causes	107	78	0.8	0.6	-32%	14%
Unknown	7	25	0.1	0.2	+100%	-7%
All causes	1,209	1,036	9.3	7.4	-21%	100%
Minority						
Birth defects	138	125	2.3	1.9	-16%	13%
Prematurity/low birthweight	176	223	2.9	3.4	+17%	-17%
Respiratory distress/BPD	106	85	1.7	1.3	-26%	15%
Sudden infant death syndrome	146	114	2.4	1.7	-28%	23%
Labor/delivery complications	29	19	0.5	0.3	-40%	6%
Injuries	40	40	0.7	0.6	-8%	2%
Infection	85	82	1.4	1.2	-11%	5%
Other respiratory conditions	112	96	1.8	1.4	-21%	13%
Other perinatal conditions	214	171	3.5	2.6	-26%	31%
Other known causes	74	55	1.2	0.8	-31%	13%
Unknown	13	22	0.2	0.3	+56%	-4%
All causes	1,133	1,032	18.5	15.6	-16%	100%

[*] Infant deaths per 1,000 live births.

[**] Bronchopulmonary dysplasia

Note: Percentages rounded off to whole integers and may not match exactly those calculated from the mortality risks presented in table.

Note: Infants of unknown birthweight excluded.

of our study, probably played a significant role in this improvement.

Declines in deaths due to SIDS and the category "other perinatal conditions" among minorities contributed to much of the reduction in the infant mortality rate. Except for complications of labor and delivery, these were the only causes of death that declined more for minorities than for whites. The dramatic decrease in SIDS deaths among minority infants in North Carolina is particularly encouraging and warrants further study. It is true that SIDS mortality has been declining in the US since the 1980s, but the national rate of decline for both whites and minorities is less than that observed in this analysis.[5]

> "We need to focus our efforts on preventing extreme prematurity rather than treating very low birthweight infants."

The overall improvement in infant mortality among minority infants was hampered by the increase in deaths due to prematurity/low birthweight. About one-half of these occurred in infants weighing less than 500 g—infants who are unlikely to survive even with the most aggressive medical care. The mortality rate of very low birthweight minority infants did actually improve during the period, but this improvement was offset by the increased number of these deliveries.

It is clear that we need to focus our efforts on preventing extreme prematurity. It is therefore of concern that our analysis shows an apparent lack of success from the various health initiatives put in place since 1988 to reduce the statewide rate of low birthweight. Our finding is particularly troubling because so much of the disparity in infant mortality between whites and minorities is due to differences in the incidence of extreme prematurity. There is evidence that many of these programs, including maternity care coordination[6] and the Women-Infant-Children (WIC) program,[7] can reduce the risk of low birthweight. It is possible that the apparent effect of these programs is being overridden by an increased rate of substance abuse, genitourinary infections, and other risk factors for preterm birth, but this hypothesis needs to be substantiated. Be that as it may, our current efforts to reverse the trend toward low birthweight are insufficient. Until we address this problem effectively, it is unlikely that we will substantially reduce the disparity in birth outcomes between whites and minorities.

In order to further improve birth outcomes in North Carolina we will need to pursue a broad range of interventions. The work to be done in a number of areas is clear. Prenatal interventions of proven effectiveness, such as WIC, must be provided to more of those in need. More women should begin their pregnancies free of alcohol, drug, and tobacco use. Unintended pregnancies, and the high-risk conditions often associated with them, must be prevented more effectively. Risk-appropriate preconception, prenatal, delivery, and infant care must be accessible to all, particularly those mothers and infants at greatest risk.

> "We must abandon the false dichotomy between a 'private medical model' and a 'public health model.' Medical and public health interventions must complement, not oppose one another."

We must abandon the false dichotomy between a "private medical model" and a "public health model." To be effective, medical and public health interventions must complement rather than oppose one another.

In many areas, we need to develop and implement better interventions. Despite years of intensive medical and public health efforts, the problem of preterm birth has remained intractable. At the same time, new opportunities for preventing birth defects, SIDS, and other causes of infant mortality are becoming a reality. Prevention of birth defects, low birthweight, and SIDS—which together account for more than half of all infant deaths—represent the greatest potential for significantly reducing infant mortality and improving the overall health of our children. To achieve this goal we need a better understanding of biological, environmental, and socio-behavioral risk factors that determine these outcomes so that we can develop more effective interventions targeted at populations at greatest risk. ❑

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Racial Differences in North Carolina Infant Mortality

Eilene Z. Bisgrove, PhD, Cynthia M. Visness, MA, MPH, Judith A. Fortney, PhD,
Jason B. Smith, MPH, Laura J. Lofy, MPH, and Walter L. Shepherd, MA

Despite recent, significant strides in reducing infant mortality, North Carolina's infant mortality rate remains among the highest in the United States. This is due, in part, to the unacceptably high rate of infant mortality among the state's black population (a rate approximately double that of the white population in 1992).[1]

We know many of the risk factors for infant mortality: *biological factors* such as low birthweight (less than 2,500 g), premature birth (birth after less than 37 weeks of gestation), maternal hypertension, and a history of previous poor reproductive outcomes; *behavioral (maternal) factors* such as inadequate prenatal care, poor diet, smoking, and alcohol use; and *demographic factors* such as low income, substandard housing, and births to single mothers.[2-6]

Low birthweight and prematurity, the most immediate causes of *neonatal* mortality (deaths during the first 28 days of life), disproportionately affect blacks. Black infants are 1.8 times as likely as white infants to be born prematurely and 2.4 times as likely to be born very prematurely (at less than 33 weeks of gestation).[7] The causes of preterm birth remain largely unexplained. Blacks are also overrepresented in most of the categories of factors that increase the risk of *postneonatal* mortality (deaths from age 28 days to one year), but their overrepresentation in these categories does not fully account for the increased postneonatal mortality of blacks, suggesting that other risk factors are yet to be identified.[5]

In 1993, Family Health International and the Governor's Commission on Reduction of Infant Mortality formed a partnership to examine racial differences in infant mortality in North Carolina and to identify possible intervention strategies targeted at specific risk factors and population subgroups. This paper presents the primary findings of our analysis. The full final report is available from the authors.[8]

Data and Methods

We used 1990 North Carolina data: linked birth and death certificates, live birth files, county LINC (Log Into North Carolina) census data, and supplemental county assessment data. The LINC and supplemental county data include information on a number of socioeconomic and health care indicators such as income, unemployment, housing quality, crime, and health facilities, health care providers, and method of payment for health care services. We merged birth certificate files with death certificate files to determine whether or not an infant had died and, if so, the age and cause of death; we then merged these files with selected county census variables matched by county of the mother's residence.

We examined neonatal and postneonatal deaths separately since their underlying causes were presumed to be different. In addition, because premature delivery explains the greatest proportion of infant deaths, we also examined the causes of premature delivery.

Crude relative risks were estimated for each variable in the data set. Fifteen risk factors were selected from the birth certificate data:

- black race
- young maternal age (under 20)
- old maternal age (over 34)
- failure to graduate from high school
- being unmarried
- having received inadequate prenatal care (as defined by the Kessner Index)[9]
- smoking during pregnancy
- high parity (more than two live births—including the current birth—to women under 25 or more than three to older women)
- a previous pregnancy within the past 12 months
- any previous fetal or child death
- presence of maternal risk factors
- presence of any complication of labor or delivery
- presence of any congenital anomaly of the infant
- presence of any other abnormal condition of the newborn
- premature birth of the infant

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These risk factors were entered simultaneously into a logistic regression model using SAS software.[10]

Results

There were 106,200 live births in North Carolina in 1990, and 1,147 infant deaths. Of those who died, nearly half did so on the day of delivery and 68% within the first month. When stratified by race, infant mortality rates (deaths per 1,000 live births) were highest for blacks (17.1), intermediate for whites (8.1), and lowest for Hispanics (5.6). Nearly half of the deaths among blacks were infants born after less than 27 weeks of gestation, demonstrating the important role of prematurity in this population.

Risk factors by racial group. Table 1, at right, shows the prevalence of the various risk factors in the non-Hispanic white and black populations (other racial or ethnic groups were excluded because of the small numbers of births). The percentage of black women is higher in every risk category except "older mothers" and "smokers."

Table 1. Prevalence of risk factors for infant and neonatal death by race

Risk factor	White (N=69,390)	Black (N=30,219)
Premature delivery	8.4%	18.0%
Less than high school education	19.3%	28.7%
Less than 20 years old	13.4%	25.8%
More than 34 years old	8.3%	6.1%
High parity	7.7%	18.6%
Previous fetal or child death	25.2%	29.0%
Inadequate prenatal care	4.3%	14.6%
Unmarried	14.0%	64.3%
Smoked during pregnancy	22.8%	16.8%
Short birth interval	3.8%	5.9%
Maternal medical risk during pregnancy	21.6%	27.4%
Complications of labor or delivery	35.6%	39.9%
Congenital anomaly	0.9%	1.5%
Abnormal condition of the newborn	5.7%	7.2%

Neonatal death. By far the greatest risk factor for neonatal death is premature birth (Table 2, at right). When all other risk factors were controlled, premature infants were 15.6 times more likely to die than term infants. As we would expect, medical risk factors such as maternal medical problems, complications of delivery, congenital anomalies, and other abnormal conditions of the newborn are also strongly associated with neonatal death. A short interval between the present and the preceding birth, and inadequate prenatal care showed strongly significant effects. Somewhat to our surprise, high parity and young maternal age appeared to *protect* against neonatal death.

After accounting for the prevalence of all these risk factors among black women, we found that their risk of experiencing neonatal death was not significantly higher than that of white women. In fact, a condensed model that controlled only for premature birth and inadequate prenatal care (data not shown), found the relative risk of neonatal death for black women to be the same as in Table 2 and not significantly higher than that for white women. This further emphasizes the important role of prematurity in black neonatal mortality.

Table 2. Adjusted relative risks (RR) of neonatal death and 95% confidence intervals estimated from logistic regression model

Risk factor	RR	95% CI*
Premature delivery	15.64	12.71-19.24
Less than high school education	1.20	0.96-1.49
Less than 20 years old	0.69	0.53-0.90
More than 34 years old	1.04	0.75-1.46
High parity	0.71	0.55-0.93
Previous fetal or child death	1.22	1.01-1.47
Inadequate prenatal care	1.62	1.29-2.04
Unmarried	1.24	1.00-1.54
Smoked during pregnancy	0.84	0.68-1.04
Short birth interval	1.93	1.49-2.50
Maternal medical risk during pregnancy	1.35	1.13-1.60
Complications of labor or delivery	1.50	1.25-1.80
Congenital anomaly	9.49	7.13-12.63
Abnormal newborn condition	5.02	4.18-6.02
Mother is black	1.14	0.93-1.40

*Confidence intervals that bracket 1.0 are not statistically significant.

Postneonatal death. The causes of postneonatal death are less directly related to pregnancy, labor, and delivery. In fact, when we simultaneously controlled for all risk factors, neither short interval between pregnancies, the presence of maternal risk factors during pregnancy, nor complications of labor and delivery were related to postneonatal death. However, premature infants and those born with congenital anomalies or other abnormal conditions were more likely to die between one and 12 months than "healthy" babies. Among maternal risk factors, high parity, age under 20 years, and smoking provided the largest risks. Unlike the case with newborns, even after controlling for prematurity, postneonates of blacks were 38% more likely to die than the postneonates of whites (Table 3, at right).

Premature delivery. Every one of the known risk factors except high parity was significantly related to premature delivery (Table 4, at right). But even when all known risk factors were accounted for, black women still had an 86% higher chance of delivering prematurely than did white women. Unfortunately, the data available from birth certificates do not provide sufficient detail about health, behavior, and socioeconomic background to explain the excess of premature births among black women.

County-level data. We had hoped that county-level data would provide information on the mother's situation that was not available on the birth certificates. However, few of those variables showed any significant effect when tested in the model, and none helped explain the racial disparity in mortality or prematurity. This may be because the aggregate data we had available are poorly suited for analyses in which individual mothers and babies form the unit of analysis.

Our analysis did point to some factors—largely the presence of county-wide poverty—which may be important to understanding infant mortality, but it also highlighted the need to collect better information about individual women in order to thoroughly elucidate the relationships (if any) with infant mortality.

Race and age. Pregnancies in teenagers do not significantly contribute to infant mortality in North Carolina or the racial gap in mortality. Black women under age 20 do give birth more often than white women of the same age, but their babies survive comparatively well. In fact, the risk for neonatal death is lowest for black women aged 15-19 and increases thereafter (Fig. 1, next page). On the other hand, the risks of death for the neonates of whites decrease with maternal age until age 35.

Discussion

If we are to reduce neonatal deaths, we must reduce the incidence of preterm birth. This is clear from a logistic regression model for premature delivery stratified by race (data not shown), which indicates that black and white women have similar risks for preterm birth. Risks that were slightly higher for black women were maternal age greater than 34 years and a short interval since the preceding birth.

Preventive or therapeutic health interventions aimed at young black women, especially those with health risks, might

Table 3. Adjusted relative risks (RR) of postneonatal death and 95% confidence intervals estimated from logistic regression model

Risk factor	RR	95% CI*
Premature delivery	2.74	2.13-3.53
Less than high school education	1.26	0.96-1.65
Less than 20 years old	1.45	1.06-1.99
More than 34 years old	0.91	0.56-1.48
High parity	1.79	1.34-2.40
Previous fetal or child death	1.16	0.90-1.48
Inadequate prenatal care	1.36	0.99-1.87
Unmarried	0.89	0.67-1.18
Smoked during pregnancy	1.86	1.46-2.37
Short birth interval	1.15	0.75-1.76
Maternal medical risk during pregnancy	0.98	0.77-1.27
Complications of labor or delivery	0.95	0.76-1.20
Congenital anomaly	6.89	4.57-10.38
Abnormal newborn condition	2.38	1.76-3.23
Mother is black	1.38	1.06-1.81

*Confidence intervals that bracket 1.0 are not statistically significant.

Table 4. Adjusted relative risks (RR) of premature delivery and 95% confidence intervals estimated from logistic regression model

Risk factor	RR	95% CI*
Less than high school education	1.17	1.10-1.23
Less than 20 years old	1.11	1.04-1.18
More than 34 years old	1.30	1.19-1.41
High parity	1.03	0.97-1.10
Previous fetal or child death	1.06	1.01-1.11
Inadequate prenatal care	1.89	1.78-2.02
Unmarried	1.27	1.21-1.34
Smoked during pregnancy	1.14	1.08-1.20
Short birth interval	1.79	1.65-1.94
Maternal medical risk during pregnancy	1.66	1.59-1.74
Complications of labor or delivery**	4.04	3.80-4.30
Congenital anomaly	1.73	1.48-2.03
Mother is black	1.86	1.77-1.95

*Confidence intervals that bracket 1.0 are not statistically significant.

** Consists of premature rupture of the membranes and cord prolapse, the two complications most likely occur before the onset of labor.

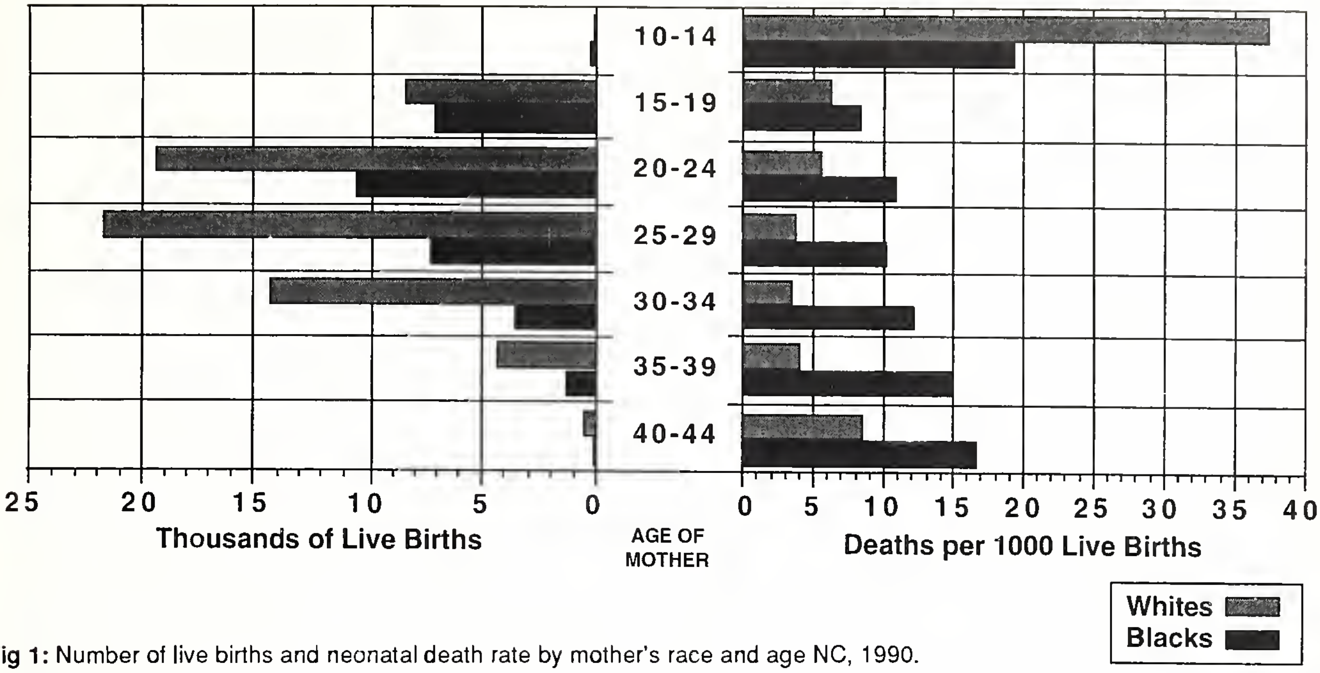

Fig 1: Number of live births and neonatal death rate by mother's race and age NC, 1990.

reduce the risk of neonatal infant death. Programs targeted at older black women, particularly those with a previous poor pregnancy outcome, might help because the pregnancy itself brings these women into contact with the health care system that offers health risk screening, health interventions, and family planning counseling and services. Since a short interval between pregnancies is a major risk factor for premature delivery, pregnant women should be counseled about contraception after delivery, as well as after an abortion or miscarriage.

Campaigns to increase breastfeeding by high-risk mothers could serve to lengthen birth intervals and potentially improve child survival. It is precisely the populations at highest risk of infant death who are least likely to breastfeed. Only about 25% of black women in the US breastfeed compared to about 60% of white women; women with less education and those living in the South are less likely to breastfeed.[11] In addition to delaying resumption of fertility, breastfeeding protects infants against many infections and even against sudden infant death syndrome (SIDS).[12,13]

Infections of the reproductive tract may play a role in premature labor.[14] Several studies have linked bacterial vaginosis with preterm delivery and have suggested that treatment with metronidazole might reduce the incidence of preterm labor.[15,16] We were unable to examine this factor with our data set, but this avenue of research may prove to be fruitful in reducing the risk of preterm birth and thereby reducing infant mortality.

> "The risk of infant death according to maternal age diverges for black and white women, refuting the common belief that the excess black infant mortality is due to the high rate of birth to black teenage mothers."

Researchers are currently examining the effects of maternal stress on preterm birth.[17] Stress is not as easily treatable as infection, but stress reduction and support programs could be made available to pregnant women. Unfortunately, we were unable to examine this factor using our data.

The effects of maternal age on infant mortality are important, but the factors involved are not clear. The risk of infant death according to maternal age diverges for black and white women, refuting the common belief that the excess black infant mortality is due to the high rate of birth to black teenage mothers. It seems, in fact, that most black and white women are having their babies at the respective ages when it is safest for them to do so. It may be that the infant mortality disadvantage experienced by older black women represents the consequences of social disadvantage; if so, this is a problem that needs to be addressed. Medical risks such as hypertension, diabetes, malnutrition, and poor general health status often increase with age and may explain the increased risk of infant death experienced by older black women. In addition, older women have more opportunity to be exposed to and develop the compounded effects of sexually transmitted diseases and reproductive tract infections. Finally, the deleterious effects of psychosocial stress may increase with age, and black women may get less social support as they age. Younger black women may have more support from families, friends, and social services, particularly those they access through schools or special programs for teenagers.

Conclusions and Ideas for Interventions

- We need early interventions to reduce health risks associated with premature delivery among black women, especially older black women and those with a prior poor birth outcome.
- Black women who have had a high-risk pregnancy, a previous infant death, or miscarriage are at high risk for subsequent infant death. While in contact with the health care system, they should be targeted for health and family planning services.
- Identification and treatment of reproductive tract infections in pregnant women may reduce preterm births. Metronidazole treatment during the second trimester may reduce preterm births.
- We should emphasize the use of barrier contraception by sexually active young people to minimize reproductive tract infections. "Safe sex" messages should note that delaying intercourse, the use of barrier contraception, and having fewer partners can protect the health and survival of future children.
- We need to assess stress levels among pregnant women and study whether stress reduction programs can reduce the numbers of premature deliveries.
- We need parenting education and support programs for young and high-parity mothers, especially those with infants at high risk for postneonatal mortality.
- Breastfeeding should be promoted among all new mothers.
- We need smoking cessation programs to improve infant health and survival by reducing low birthweight and postneonatal deaths, especially from SIDS. These measures would apply to all mothers and not affect the racial disparity in infant mortality.
- Finally, we need epidemiological studies to investigate the complex relationships between women's physical and psychosocial health and infant death rates. These analyses should consider a number of variables not presently available (such as the mother's history of reproductive tract infections, nutritional status, and dietary patterns; social support; psychosocial stress; and infant feeding practices) in order to clarify the effects of preventable conditions for which effective interventions are feasible. ❑

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Tularemia in North Carolina, 1965-1990

Ricky Langley, MD, MPH, and Robert Campbell, MD, MPH

Tularemia is uncommon in North Carolina. It is largely a disease of animals, caused by the bacterium *Francisella tularensis*.[1] Because human infection is rare, the diagnosis may not be considered and serious consequences can develop before proper treatment is instituted. Furthermore, the situation is even more complicated because there are several different presentations of the disease. Depending on the infecting bacterial strain and the portal of entry, tularemia may therefore present in glandular, ulceroglandular, oculoglandular, oropharyngeal, pneumonic, or typhoidal form.[2]

The ulceroglandular form of tularemia (75%-85% of cases) is characterized by an ulcerated skin lesion and regional lymphadenopathy. The glandular form (5%-10% of cases) is characterized by fever and tender lymphadenopathy. The typhoidal form (5%-10% of cases) consists of fever, weight loss, abdominal pain, diarrhea, melena, hematemesis, and ulcerative lesions of the gastrointestinal tract. The typhoidal form may occur after cutaneous, respiratory, or oral contact with the organism. The oculoglandular form (1%-2% of cases) presents with unilateral, painful, purulent conjunctivitis with cervical and preauricular adenopathy after the inoculation of the bacteria into the conjunctival sac. The oropharyngeal form comprises an acute exudative or membranous pharyngotonsillitis with cervical adenopathy. Pneumonia may be a sole manifestation, but it is usually a secondary complication.

From 1979 through 1988, there were 2,356 cases of tularemia in the United States.[3] Twenty-four of these patients died, giving a fatality rate of 1/100. The epidemiology of the disease appears to be different in different parts of the country. In the southwest-central states, most cases occur in spring and early summer and follow tick exposure.[4] In Georgia, on the other hand, most cases occurred in winter and early spring, primarily following contact with infected rabbits.[5]

Because tularemia is thought to be underreported in North Carolina (personal communication from the NC Department of Health, Environment and Natural Resources), we decided to describe the epidemiologic aspects of tularemia in this state. We hope that our results will remind health care workers in the South to consider the possibility of tularemia in people who become ill after handling wild animals or after a tick bite.

Methods

Tularemia is a reportable disease in North Carolina. Pre-addressed communicable disease cards (available to physicians, hospitals, and laboratories in the state) are to be returned to the Communicable Disease Control Section of the NC State Board of Health whenever the diagnosis of tularemia is suspected. A "Tularemia Epidemiologic Report" is then sent to the physician to collect further demographic, exposure, clinical, and serological information about the case. The data collected from this procedure from 1965 to 1990 were available for our review.

We grouped cases by age (Group 1, individuals 0-19 years of age; Group 2, 20-44 years of age; and Group 3, 45 years and older); race and sex; by type of vector; and by presence or absence of lymphadenopathy. We noted whether cases were diagnosed clinically (that is, by physician report of a compatible history of exposure, but no laboratory confirmation) or by laboratory testing that satisfied at least one of the following criteria:[6,7]

- Isolation of *Francisella tularensis* from a clinical specimen.
- Demonstration of *Francisella tularensis* in a clinical specimen by immunofluorescent staining.
- Demonstration of a four-fold rise in specific antibody titer between acute and convalescent phase serum specimens obtained more than two weeks apart and analyzed at the same time in the same laboratory.
- Finding a single convalescent antibody titer of 1:160 or greater.

Data from the Communicable Disease Control Section and the Tularemia Epidemiologic Report were extracted and coded for computer analysis.[8] Descriptive statistics were generated from the data, and chi square or t-test procedures were used to analyze the data. We considered an alpha level of 0.05 to be statistically significant.

Results

Between 1965 and 1990, 69 cases of tularemia were reported to the NC Communicable Disease Control Section. Of these, 45 were confirmed by serology or culture and 24 were clinical diagnoses.

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Affected individuals ranged in age from less than one year to 75 years; the mean age was 34.7 and the median age, 36 years. The records showed that 33 (48%) of the cases reported recently handling or dressing a rabbit; only six (9%) reported tick bite; and in 30 cases (44%) no vector was stated. Most cases occurred during the winter months (Fig. 1, at right). Cases were reported in all three geographic regions of North Carolina but the majority occurred in the coastal region (Fig. 2, below).

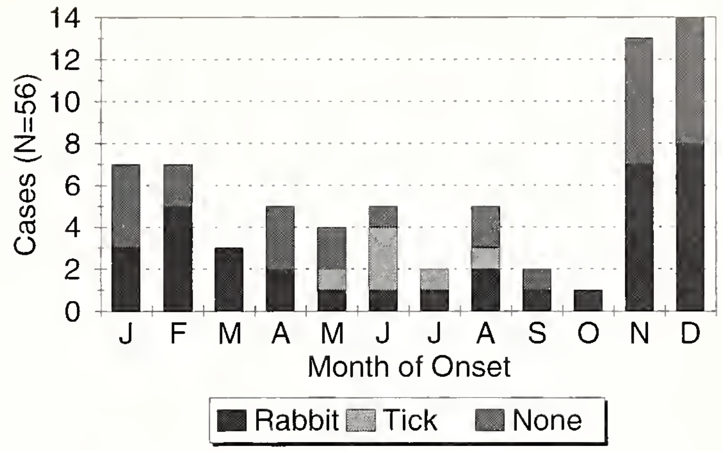

Fig 1: Month of onset of tularemia.

The time interval from handling rabbits to development of illness was recorded in 27 cases and ranged from 2-90 days with a mean of 13.1 days and a median of four days. Time lapse after tick bite was reported in four cases and ranged from 1-25 days with a mean of 12.5 days and a median of 12 days.

Duration of fever, reported in 34 (49%) cases, ranged from 0 days (one case) to three months with an average duration of 15.5 days and a median of 10 days. Unfortunately, there was no information about antibiotic use. There was no difference in duration of fever after tick or rabbit exposure.

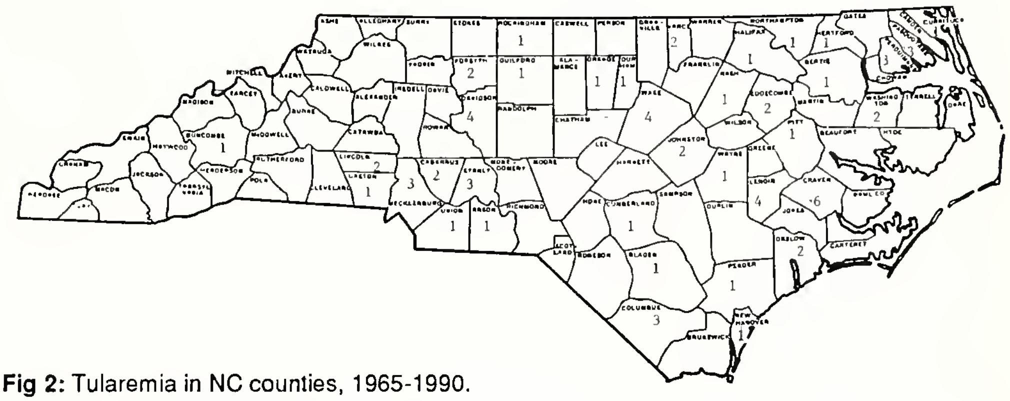

Fig 2: Tularemia in NC counties, 1965-1990.

The average age of male cases was 35.5 years compared to 33.9 years for females. There was no statistically significant difference in occurrence of lymphadenopathy, hospitalization, or vector contact when evaluated by age group, sex, or race (Table 1, next page). However, the mean duration of fever in cases with lymphadenopathy was 8.7 days (median 7 days) compared to 28.4 days (median 19.4 days) in those without ($p<0.001$).

Clinical Features

The site of a primary lesion was reported in 37 (54%) cases. As Table 2 (next page) shows, the fingers were the most prominent site. Lymphadenopathy developed in 28 of the individuals in whom a primary site was identified. Nine cases had a primary lesion but no lymphadenopathy, six had antibody titers greater than 1:160, and three were diagnosed clinically. No lymph node enlargement was noted in the two cases with pulmonary involvement. Four patients developed lymphadenopathy but no primary lesion; two had handled rabbits but no vector was reported in the other two cases. Twenty-three of the cases with lymphadenopathy and a primary lesion were contracted from handling rabbits, four from tick bites, and one was unknown. The two pulmonary cases developed after handling rabbits.

Antibody titers were reported in 45 (65%) cases. Thirty-six of these had at least one titer measured at greater than or equal to 1:160.

From the available information we were able to classify 42 of the cases: one typhoidal; two pulmonary; four glandular; seven only primary skin lesion; and 28 ulceroglandular. No fatalities were reported.

Disease Vectors

A vector was reported in only 39 (57%) cases (only ticks and rabbits cited). Rabbit handling was noted in 85% of the 39 cases and tick bites in the remaining 15%. Of the cases with a reported source of exposure, 27 of 30 males and six of nine females had contact with rabbits; three males and three females reported tick bites. Seventy-six percent of individuals exposed to rabbits developed lymphadenopathy as did 67% of those exposed to ticks ($p=0.639$). There was no difference between race, sex, and age groups and type of vector encountered.

Discussion

Between 1965 and 1990, 5,069 cases of tularemia were reported in the United States. North Carolina contributed 1.6% of that total.[3] *Francisella tularensis* infection can be transmitted by arthropod bite, contact with blood or tissues of infected animals, ingestion of contaminated water or meat, or inhalation of

Table 1. Demographic characteristics of tularemia cases in NC

Race	Number of cases	Tick bite (%)	Rabbit contact (%)	No vector (%)	Adenopathy (%)
White	54	8	47	45	47
Black	15	13	47	40	47
Sex					
Male	55	6	49	45	42
Female	14	21	43	36	64
Age group					
0-19	17	12	47	41	47
20-44	30	10	43	47	47
≥45	22	5	55	41	46
+Adenopathy	32	13	78	9	—
-Adenopathy	37	5	22	73	—
Hospitalized	15	20	67	13	67

Table 2. Site of primary lesion of tularemia in NC

Site	Number of cases
Fingers	21
Hand	3
Arm	3
Neck/face	2
Axilla	2
Lungs	2
Foot	1
Knee	1
Abdomen	1
Scalp	1

aerosols. In the US the mammals most often responsible for transmission of tularemia to humans are rabbits, beavers, muskrats, meadow voles, and sheep. The deerfly, dog tick (*Dermacentor variabilis*), wood tick (*Dermacentor andersoni*), and lone star tick (*Amblyomma americanum*) are the common arthropod vectors in the US.[1,2,7]

Two varieties of *Francisella tularensis* have been recognized in the US.[9] Jellison Type A strains are usually acquired from cottontail rabbits (or the ticks that parasitize them). Type B strains are common in hares, moles, beavers, muskrats, squirrels, rats, mice, and certain birds. Type A strains tend to be more virulent in humans and rabbits. Without treatment, Type A has a 5%-7% case fatality rate.[9,10]

The epidemiology of the illness depends on the geography of the country. Like North Carolina, most of the cases in Georgia occur in the winter and as a result of handling rabbits.[5] The seasonal pattern corresponds to the North Carolina rabbit hunting season (from the end of November to the end of February). In the southwest central states most cases occur between April and July, usually from tick bites.[4] Differences in the infection rate of arthropods in different areas of the country as well as cultural differences among the various regions may account for the patterns noted.

After an incubation period of 1-14 days (average 3-5 days) patients usually have an abrupt onset of fever, chills, malaise, and fatigue. Depending on the route of entry, ulceroglandular, glandular, typhoidal, oculoglandular, or oropharyngeal manifestations may develop. As in most studies, we found the ulceroglandular form to be most common (28 of 69 cases). Ulceroglandular tularemia must be differentiated from sporotrichosis, cat scratch fever, infectious mononucleosis, lymphangitis from skin infections, lymphogranuloma venereum, plague, and *Pasteurella* infections.[2,7]

In nine of our cases a primary skin lesion was present without accompanying lymphadenopathy. In six of these cases antibody titers of greater than 1:160 were detected; the other three were diagnosed by clinical examination and history. Of course, it is always possible that lymphadenopathy was overlooked or not recorded on the Tularemia Epidemiologic Report. Four patients presented with glandular tularemia without a primary skin lesion (one had pulmonary complications). Differential diagnosis of glandular tularemia is similar to that of the ulceroglandular form.

Two people without a primary skin lesion or lymphadenopathy developed pneumonia. Pleuropulmonary complications are not uncommon in tularemia. Between 30%-80% of typhoidal cases and 10%-15% of ulceroglandular cases develop pneumonia.[7] There is usually a non-productive cough, paucity of physical findings, and patchy ill-defined infiltrates on chest roentgenogram; pleural effusions may occur. Tularemic pneumonitis may be mistaken for Q fever, mycoplasma, psittacosis, histoplasmosis, and coccidiomycosis pneumonia.[2,7]

One individual in our study had typhoidal tularemia. This individual was a veterinary assistant who had helped with many necropsies, but denied contact with rabbits. Differential diagnosis of typhoidal tularemia includes: typhoid fever, brucellosis, tuberculosis, malaria, Legionnaire's disease, psittacosis, and Q fever.[2,7] We found no cases of oculoglandular or oropharyngeal tularemia.

The median age of 36 years in our patients is consistent with the figures of 39.5 years, 40 years, and between 25-34 years of age reported by Lopez,[5] Taylor,[4] and Rohrbach,[11] respectively. As usually noted,[4,11] males were primarily affected in our study. This probably reflects increased outdoor activities, especially hunting, by men. The proportion of blacks infected (22%) closely parallels the proportion of blacks in the general NC population,[12] and argues against any racial predilection to infection.

Most cases occurred in eastern and central North Carolina; very few in western North Carolina. This may reflect the warmer climate of eastern and central North Carolina, which favors increased tick and rabbit populations (personal communication, NC Wildlife Resources Commission).

Fortunately, we found no reported deaths. In Georgia less than 1% of the cases were fatal, but 2% of the cases reported by Taylor[4] and 2.5% of those reported by Rohrbach were fatal.[11] Fatalities are more common in those over 50 and those with pulmonary symptoms.[4,11]

Although history and physical examination may help in the diagnosis of tularemia, gram staining and routine culture of clinical specimens are usually unrewarding. Furthermore, because of the hazard to laboratory personnel, many labs are reluctant to attempt isolation of the organism. Therefore, most cases are diagnosed serologically. Agglutinins usually become detectable during the second week of illness and reach a maximum around the fourth to eighth week.[7] A skin test reagent, obtainable from the Centers for Disease Control and Prevention, may be positive before the agglutination test. Up to 90% of patients develop a positive skin test within seven days of disease onset.

Aminoglycoside antibiotics are the treatment of choice.[2,7,13] Tetracycline or chloramphenicol may be given, but clinical relapse occurs more often with these agents. A live attenuated vaccine is available for individuals whose activities require repeated contact with the vectors of tularemia or laboratory researchers studying the organism.[1] Wearing gloves while cleaning rabbits and thorough handwashing after handling wild mammals can help prevent the spread of this disease. Thorough checking for ticks and the use of tick repellents can decrease the exposure to arthropods that harbor *Francisella tularensis.* ❑

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Treacherous Ticks

ROCKY MOUNTAIN SPOTTED FEVER, TICK PARALYSIS, LYME DISEASE, AND EHRLICHIOSIS

Elizabeth P. Kanof, MD

In the summer, we all enjoy whatever fun and relaxation the season offers. But with pleasure comes the threat of contracting Rocky Mountain Spotted Fever (RMSF), tick paralysis, Lyme disease, or Ehrlichiosis. These diseases are transmitted by tiny creatures called ticks, which carry infecting organisms such as Rickettsia, Borrelia, or Ehrlichia.

Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever was first recognized in the Bitterroot Valley of western Montana. However, it geographical assignation is a misnomer because in most years, more cases are reported from North Carolina than from other state. A week or two following the bite of an infected tick, the patient experiences what seems like flu: chills, fever, weakness, and muscle and joint pains.

Many, but not all, patients develop a red, flat rash starting on the ankles and wrists which rapidly spreads over the body becoming more elevated. Some areas show pinpoint bleeding into the skin, particularly on the palms and soles. Patients who don't have a history of a tick bite or do not develop the rash are at greatest risk of delayed diagnosis and might progress to irreversible shock and death.

Elizabeth P. Kanof, MD, is a board certified dermatologist practicing in Raleigh. She is also the Immediate Past President of the North Carolina Medical Society.

Tick Paralysis

Tick paralysis is most common in children. The tick hides in the scalp, groin, or some other inconspicuous place. After five days of attachment to the skin, the child develops symptoms of irritability, tingling in the legs, loss of coordination, and an ascending paralysis may develop.

Death can occur from respiratory failure if the tick is not found and removed. After a bite, the illness results from a toxin in the saliva of pregnant female ticks that the insect injects into the child while it remains attached to the skin. Recovery begins 24 hours after the tick is removed.

Lyme Disease

Lyme disease was first identified in three small towns on the east bank of the Connecticut River, one of which is Lyme, Connecticut. A group of children in that area developed a mysterious illness. Their parents pointed out to their children's doctors that an epidemic of some type was present in their neighborhoods, and this helped enormously to pinpoint this new disease. Approximately 25% of all reported cases of Lyme disease occur in children less than 11 years old.

Eighty-six percent of patients who contact Lyme disease are unaware of the causative tick bite. Patients complain of a viral-like illness, fatigue, chills, fever, headache, and joint and muscle pain. The rash appears usually on the torso as large red rings that move outward on the skin with clearing in the center; the incidence of the illness not associated with the rash is unknown.

RMSF is usually transmitted by bite of the dog tick or wood tick. It may be acquired by inhaling infectious material or being exposed to the feces of the tick. Lyme disease is transmitted by the deer tick, and although it is more common in the Northeast and Midwest than in North Carolina, it has been reported here. Travel to areas where the ticks are infected should heighten our awareness to protect ourselves.

Ehrlichiosis

Ehrlichiosis is a widespread, but frequently mild disease consisting of malaise, back pain, nausea, fever, and headache. Rash is unusual. Patients who develop fever or other signs of illness should consult their doctor. Treatment with antibiotics is recommended.

Protect Yourself and Your Family

There are a number of things we can do to avoid contracting these diseases.

1. Wear light-colored clothing so you can see the ticks.

2. Always wear shoes and socks and, as consistently as possible, long sleeves and pants tucking the pants into the socks.

3. Apply insect repellents containing N,N-diethyl-m-toluamide (Deet) or Permethrin (5% Elimite) to clothing and exposed skin. These chemicals are not recommended for the face and hands where ticks can easily be seen and removed promptly. Confer with your physician before applying either of these chemicals to the skin of young children.

4. Do a ***daily*** tick search on all members of the family who may have been exposed. Remove the tick with tweezers grasping it as close to the point of attachment to the skin as possible and pulling back with a slow steady motion. Do not use those tweezers for any other purpose. If tweezers are not available, wrap a piece of tissue around the tick; do not pull it out with your bare fingers. If parts of the tick remain in the skin, apply an antibiotic ointment. If an annoying knot forms, consult with your physician. Remember, it takes a few hours of attachment for the Rickettsia germ to be transmitted.

   Do not apply petroleum jelly, heat, or mineral oil to the tick.

5. Check your dog and cats ***daily*** for ticks and remove them with tweezers designated for that purpose only. Flush them down the toilet. Vaccines for dogs are available to prevent these diseases. Consult your veterinarian about the availability of a vaccine for your pet and for recommendations on flea collars and dips.

6. Keep your property clean. Remove leaf litter and brush as far away from your house as possible. Prune low-lying bushes to let in more sunlight. If you live in the woods, consider cutting down some of the smaller trees and rake up any leaves in areas you or children may frequent.

7. Check with your local tree nursery to determine what plantings will not attract deer and hence deer ticks.

8. Keep woodpiles neat, off the ground, and in a sunny area or under cover where they will remain dry. Woodpiles are favorite harborage for mice and other small mammals that carry infected ticks.

9. Clean up gardens, especially perennials, every fall. Excess foliage left on the ground over the winter months may provide shelter for small mammals that may act as hosts for immature ticks.

10. Avoid stone walls on your property. They attract small mammals and increase the potential for ticks.

11. Keep lawns mowed on a regular basis and trim the edges. Lawns, especially shaded ones, may support tick populations in highly infectious areas. Fields may be mowed to keep them short, especially in the fall and preferably with a rotary mower to avoid thatch build-up where mice and ticks may hide in the winter.

12. Bird feeders can attract birds— and mice, which can carry infected ticks. Keep bird feeders away from the house and the ground beneath them bare. Clean up the ground around bird feeders to limit the amount of spoilage and available rodent food. Suspend bird-feeding activities during late spring and summer when infected ticks are most active.

13. Consider erecting a hawk or owl box on your property or in a nearby area. These birds are natural predators of mice.

14. The use of insecticides is without doubt the best way to control ticks and reduce Lyme disease risk in the home environment. Three pesticides to consider include chlorpyrifos (Dursban), carbaryl (Sevin), and cyfluthrin (Tempo). One or two applications per year, in late May and September, will significantly reduce the tick population on your property.

Hiring a professionally trained applicator should be seriously considered in order to thoroughly safeguard against injury to children, pets, and the environment.

Stay safe. Report flu-like illness with or without a rash to your physician promptly. A heightened awareness of what these tiny creatures can do to us will minimize the chances of jeopardizing your summer fun. These diseases respond to antibiotic therapy but it is imperative that they be diagnosed and treated in the early stages.

For More Information

Your local county health department, family doctor, pediatrician, or dermatologist are good resources for more information. ❑

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Between a Rock and a Charybdisian Place

Baclofen (Lioresal) Overdose

Ronald B. Mack, MD

One of the more common clichés of this part of the *fin de siecle* is "between a rock and a hard place." It seems to me that this phrase originated in Homer's *Odyssey*, my favorite sea story. As you recall, Odysseus, King of Ithaca, spent 10 years away from home fighting in the Trojan War. Then he took another 10 years to get back home again. During that time he wandered the world and underwent an incredible series of adventures and adversities caused by the malice of Poseidon, god of the sea. In one harrowing episode he had to sail his ship past two horrible alternatives—Scylla and Charybdis.[1] Scylla, a ferocious six-headed monster, sat on a cliff and devoured passing sailors. Across the narrow strait, through which our hero's ship sailed, lay Charybdis, a fierce whirlpool. It was impossible to navigate the area unscathed; Odysseus avoided the whirlpool but lost some of his crew members to Scylla.

The Scylla and Charybdis of Clinical Practice

In the practice of medicine we must often prescribe a drug whose potential good effects are counterbalanced by potentially evil effects. Baclofen, a derivative of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA), is such a drug. The central nervous system (CNS) contains uniquely high concentrations of certain amino acids, especially glutamate and GABA. There is good evidence that GABA mediates the inhibitory actions of local interneurons in the brain and possibly also presynaptic inhibition within the spinal cord. It is the desire to inhibit certain CNS functions that leads us to prescribe Baclofen.

Baclofen is a lipophilic analog of GABA which, unlike GABA, can penetrate the blood-brain barrier to enter the central nervous system.[2] Its primary site of action appears to be the spinal cord where it is thought to inhibit muscle spasm by depressing monosynaptic and polysynaptic transmissions,[3,4] effects that resemble those of GABA.[3] Baclofen also reduces excitatory postsynaptic potentials in motor neurons of the ventral horn without affecting their membrane potential or input resistance.

By acting as a presynaptic GABA agonist, Baclofen decreases excitatory neurotransmitter output and thus decreases muscle tone. It is particularly useful in reducing the frequency and severity of flexor or extensor muscle spasms and reducing increased flexor tone.[3] Some authorities consider it the drug of choice for treating the muscle spasms of patients with paraplegia or quadriplegia, as well as the spasticity caused by multiple sclerosis, trauma, and other diseases of the spinal cord. It also sometimes helps patients with torticollis, Huntington's Chorea, or trigeminal neuralgia.[5] It is not recommended for the spasticity that occurs following stroke or other cerebral lesions.[3]

Baclofen is rapidly and completely absorbed from the gastrointestinal tract following therapeutic dosage. Peak blood levels occur two hours after ingestion, but in cases of overdose, gastrointestinal absorption becomes prolonged and incomplete.[5] About 30% of the drug is bound to protein, and its volume of distribution varies from 0.83 L/kg to 2.4 L/kg. The serum half-life is two to six hours but can be significantly prolonged in overdose situations.[6] About 70%-80% of an ingested dose is eliminated, unchanged in the urine within 72 hours.[7]

Baclofen Toxicity

Despite its lipophilicity, Baclofen crosses

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the blood-brain barrier poorly, and in recommended doses its central effect is almost negligible. In massive overdose it can depress the CNS.[8] Serious intoxication has followed acute ingestion of 300-970 mg in adults,[9] and ingestion of 1,250-2,500 mg has been fatal to an adult.[4] Respiratory arrest occurred in a 22-month-old child who ingested 10.9 mg/kg.[10] In order to avoid toxicity, treatment should begin with low doses that are gradually increased until an optimum effect is achieved—usually at about 40-80 mg daily. Total dose should not exceed 80 mg daily. The drug is not recommended for children less than 12 years of age.[11]

"The primary toxic effect and most common adverse clinical manifestation of Baclofen overdose is CNS depression, even coma."

The primary toxic effect and most common adverse clinical manifestation of Baclofen overdose is CNS depression, even coma.[2] Baclofen-induced coma can persist for several days despite the drug's therapeutic half-life of only three to four hours.[6] Other manifestations include muscular incoordination, seizures, and horizontal and vertical nystagmus. Pupils can be miotic or mydriatic. Sudden respiratory arrest, although uncommon, is possible. Systolic hypotension and cardiac conduction abnormalities can be seen. The authors of one study[5] claim that patients with *acute* Baclofen intoxication syndrome may have any of four major clinical manifestations: 1) encephalopathy, including disturbance of consciousness or seizure or both, 2) respiratory depression, 3) muscular hypotonia, and 4) generalized seizures. The authors also describe a *chronic* intoxication syndrome consisting of impaired memory, acute mania or catatonia, and hallucinosis.

A typical overdose patient[12] presents because of an initial agitation which has been followed in three to five hours by deep coma with flaccidity, absent limb reflexes, and lack of response to painful stimuli.[13] Apnea may accompany the CNS depression, as can grand mal seizures, hypotension, sinus bradycardia, and severe hypothermia. Physical examination of an overdosed patient may show absent doll's eye reflexes, unreactive pupils, and a flaccid paralysis.

A recent report describes six cases of Baclofen overdose seen during a two-month period in a children's hospital in South Africa; this is an important contribution since papers on Baclofen overdose in children are as rare as a good plate of linguine putanesca in Winston-Salem.[14] The six children exhibited the same clinical misfortunes that we find in adult patients who overdose on Baclofen: muscle flaccidity, hyporeflexia, respiratory depression, and coma; some of the six developed agitation, generalized convulsions, or ataxia. These cases also stress the importance of a very complete history in cases of poison ingestion, especially when children are involved and when the parents say "It couldn't happen to my child; No pills were available; *My* children would never put anything like that in their mouth; etc." Find out who is taking what medicine, including visitors and so on.

Treating Baclofen Toxicity

Unfortunately there is no specific antidote for Baclofen overdose.[13] Patients who have overdosed but are conscious when you first see them can quickly become deeply comatose and experience profound respiratory depression. Respiratory assistance must be readily available and the airway maintained, if need be, by endotracheal intubation. I would not recommend inducing vomiting with ipecac because of the potentially rapid onset of obtundation (and attendant aspiration of vomitus). Gastric lavage and the introduction of activated charcoal through the lavage tube are currently recommended for adults who ingest more than 100 mg and children who ingest more than 5 mg/kg.[7] Of course, you need to monitor cardiac and respiratory function as well as fluid and electrolytes. Intravenous diazepam is the drug of choice for Baclofen-induced seizures. If hypotension occurs, the emergency treatment consists of giving isotonic fluids intravenously and placing the patient in Trendelburg position. Some authors recommend using atropine for the treatment of coma, bradycardia, and hypotension secondary to Baclofen overdose.[9,15]

"A new drug, Phaclofen—a peripheral and central Baclofen antagonist—may lead to the development of more effective antagonists of Baclofen and GABA."

A new drug, Phaclofen—a peripheral and central Baclofen antagonist—may lead to the development of more effective antagonists of Baclofen and GABA.[16]

Mythology, a la Mack

You may wonder, sometimes, what made the Greek gods so mean and vengeful.[17] Let me tell you what I think the trouble was. Scylla was a beautiful young virgin who graduated from Our Lady of Perpetual Unhappiness High School. Glaucus, co-leader of the Lycian army during the Trojan War, had eyes for her and was willing to cast aside Circe in order to possess her. Now, Circe was a sorceress and the sole inhabitant of the island of Aeaea. Her gig was to turn enemies into monsters. *Presto!* Circe transformed our lovely Scylla into a hideous monster—a human upper torso but a trunk encircled with the necks and heads of six barking dogs. (Needless to say, you will never see her in a *Playboy* centerfold). She lived on the Italian side of the narrow Straits of Messina that divide Sicily from the mainland, and snatched sailors from their ships as they passed through the straits. Opposite Scylla lived her sister, Charybdis. She was a monster who thrice daily drank all the waters in the area, ships and their sailors included. This heavy drinker, who probably suffered from water intoxication, was the daughter of Poseidon and Gaea. Both of these ladies could have used some Prozac and a good 12-step program; they seemed to be torn between some devil and the deep blue sea. ☐

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A Drive in the Autumn Mist

Gregory J. Davis, MD

The young man had been stomped to death in a brawl instigated by his own words and deeds; a brawl fueled by ignorance, prejudice, alcohol, and rage. He had waded into a fight with several other young men who proceeded to make short work of him. In a matter of minutes, a formerly sentient being was transformed by violence into an unconscious, bleeding mass, his intracranial pressure rising from a closed head injury. Despite an expeditious response by the emergency medical team and aero-medical transport to a Level I trauma center, the young man died. He thus simultaneously entered the realm of the eternal and came to my service. I am a forensic pathologist.

I was thinking about these events as I drove east on Highway 158 out of Winston-Salem on a gorgeous autumn morning last October. Well, perhaps not beautiful by everyone's standards. I found the fog- and mist-enshrouded early hours, the slight rain as I left Forsyth County, eminently pleasing and soothing, a sharp contrast to the unpleasantness of the duty that lay in front of me. In a matter of an hour or two, I would be on the witness stand of a courtroom, graphically describing to 12 jurors and two alternates the nature of the young man's injuries; laying out the cause, manner, and mechanisms of death; fielding questions from both prosecuting and defense attorneys about the circumstances of the death: How many blows were inflicted? How long did it take for the decedent to lose consciousness? Did he suffer? How much did he suffer? Would you describe the wounds in greater detail, Doctor?

I drove through the pine forests, mentally reviewing the case and enjoying the North Carolina countryside less than I should. The slight dry mouth of pre-performance anxiety was upon me, as it always is, in spite of almost a decade of "regular performances." The awesome responsibility of telling the truth, the whole truth, and nothing but the truth to a jury of my fellow citizens weighs heavily on me.

Violence Exacts Its Toll

I pulled into the courthouse square with time to spare. I was unceremoniously ushered by a bailiff into a witness waiting room that could be anywhere in our state, anywhere in our country. Cramped and claustrophobic in proportions, the smoke-filled room had only a cracked window for relief. There were six of us, ranging from fact witnesses who saw the beating to the emergency medical technicians who had first responded. I had my *North Carolina Medical Journal* with which I could absorb myself; my fellow cogs in the wheel of justice, trapped in a cubicle reminiscent of Sartre's *No Exit*, had to content themselves with dog-eared copies of *People* magazine.

Early in the afternoon, my testimony over, I had a quick bite at the Mom 'n Pop diner in the courthouse square. On my way back home again, sun broke through the mist; pea soup gave way to a riot of hues and the swirling roadside vortices of fallen leaves. But my enjoyment of the bittersweet beauty of North Carolina autumn, its falling leaves a harbinger of winter to come, was repeatedly interrupted by thoughts of the senseless death of a young man, a nauseatingly familiar refrain in our beautiful city and state. By mid-autumn of 1994, Forsyth County had recorded 38 homicides—38 lives taken by the willful act of another. All senseless, all unnecessary, all stupid; all caused by arguments about a sandwich, or drug deals gone bad, or the robbing of a defenseless elder, or killing for the "pure pleasure" of taking a life.

Out state is too beautiful, its people, its natural resources, its industry too precious, to be so tainted by violence. I thought of my son, coming home crying from school, asking what to do about the bully who was constantly roughing him up. My own father's advice to me in a similar predicament almost a quarter-century ago was to avoid conflict as best I could, but if backed

Continued on page 335

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Substance Abuse Consultation in a Teaching Hospital

Roy J. Mathew, MD, Jeffery Georgi, MDiv, William H. Wilson, PhD, Jennifer N. Georgi, and JV Lowe, BA

Substance abuse, including alcoholism, causes or contributes to several major medical and surgical illnesses.[1] Furthermore, the prevalence of alcoholism is high among inpatients, ranging from 10% to 40%.[2-4] Enoch Gordis, director of the National Institute of Alcohol Abuse and Alcoholism has estimated that at any given time up to 40% of hospital beds are occupied by patients whose illnesses are caused by alcohol.[5] Alcohol and drugs are known risk factors for motor vehicle crashes, homicide, suicide, falls, burns, and drowning.[6-8]

Neither the young nor the old are spared the problems of alcohol; a number of studies have found high prevalence rates of alcoholism and substance abuse in the hospitalized elderly.[9,10] And the effects of alcohol and drugs on pregnancy and the neonate are topics getting a great deal of recent attention.[11,12] Because of the magnitude and extent of alcohol-related problems, concern has been expressed that physicians are not sensitive to alcohol and drug abuse; that they are unable to identify substance abuse problems or to intervene successfully.[13,14]

In order to improve the identification and care of patients with substance abuse disorders at Duke University Medical Center, we put together a Substance Abuse Consultation Liaison (SACL) team that functions independently of the Psychiatric Consultation Liaison division. The SACL team, comprised of a psychiatrist/addiction medicine specialist, a social worker, and a substance abuse counselor, has established close contacts with the hospital staff through lectures, presentations at grand rounds, and personal contacts.

We have recorded all the substance abuse referrals received by the SACL team and describe in this paper the characteristics of the consultation requests received between November 1992 and November 1993. Only referrals from inpatient services are considered here. Services that requested 10 or more consults are shown in Table 1, below, as a percent of the total number of referrals.

Results

A total of 566 substance abuse consultations were made during the study period. The mean age of the patients was 38.2±1.9 years, and 256 (47%) were men. There were 128 white men (45.9yr±15.1), 126 black men (41.4yr±13.3), and two men of other races; there were 77 white women (38.3yr±14.3), 208 black women (31.4 yr±9.7), and three of other races. No information about race was available for 22 patients. Analysis of variance (ANOVA) showed the differences in ages of patients according to race and sex to be highly significant. Because there were so few patients of other races, our comparisons by race included only whites and blacks.

Referrals came from a wide range of medical specialties (Table 1). As might be expected, there were several hundred different medical diagnoses applied to the patients in addition to substance abuse. Most patients (48%) had only one other diagnosis; 25% had two; 13%, three; 6%, four; and 7%, five or more diagnoses. We sought relationships between the number of diagnoses and patients' age, sex, or race, and to expedite analysis, we combined diagnoses into large categories: cardiac (ischemic and non-ischemic cardiovascular disease such as hypertension), psychiatric, obstetrical and gynecological, infectious, hepatic, renal, dia-

Table 1. Sources of 10 or more consult referrals

Referral source	%
Cardiology	8
Family medicine	4
Gastroenterology	3
Internal medicine	17
Neurology	2
Psychiatry	26
Pulmonary	4
Ob/gyn	24
Other	9

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Table 2. Diagnostic categories

Category	%**
Diabetes	4
HIV	4
Infectious disease	11
Ischemic heart disease	7
Liver disorders	7
Ob/gyn* conditions	20
Other heart disease	8
Pancreatitis	7
Psychiatric disease	31
Renal disorders	3
Seizure	4
Trauma	5

*Ob/gyn is expressed as a percent of the total number of females.
**Total does not add up to 100% because some patients may have had more than one diagnosis.

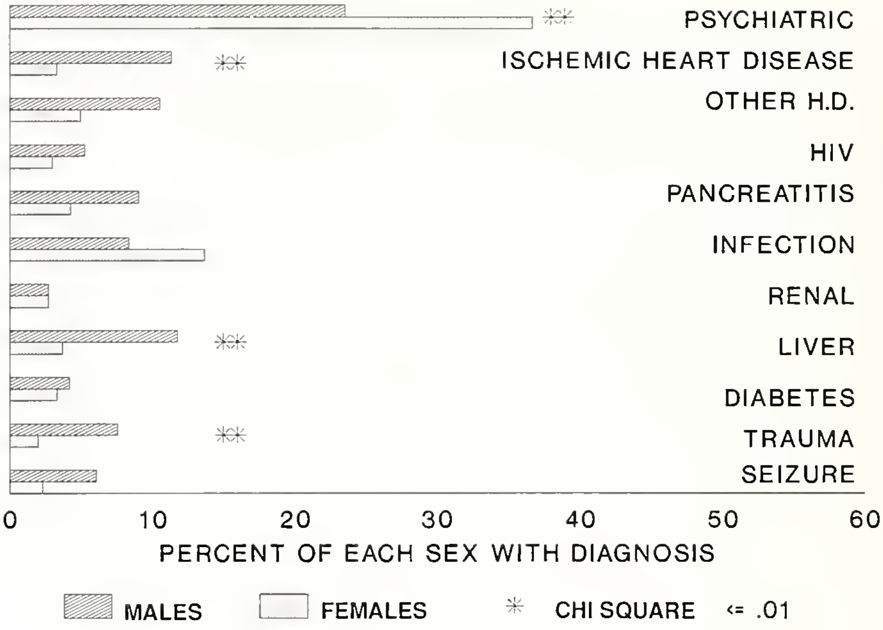

Fig 1a: Diagnostic categories in men and women

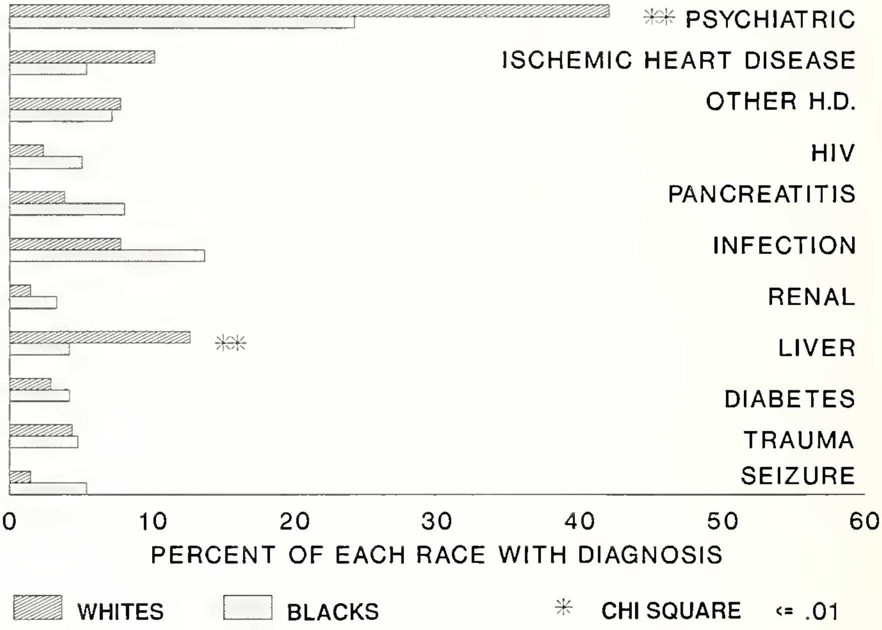

Fig 1b: Diagnoses among whites and blacks

betic, traumatic, and seizure disorders. We counted the numbers of patients who had one or more diagnosis in each category and expressed this count as a percent of the total sample (except for obstetrical-gynecological disorders, which were expressed as a percent of the total number of females). The results are shown in Table 2, above. Chi square testing of each diagnostic category (excluding obstetrical/gynecological) revealed significant sex and race differences, which are shown in Figs. 1a and 1b, at right. Analysis of race distribution for obstetrical/gynecological diagnoses (including pregnancy) showed that 90% of the patients were black (p<.001).

We examined the type and number of drugs abused. Table 3, next page, shows the percentage of patients who reported use of each drug. Many patients admitted using several drugs, the most common being alcohol followed by cocaine; 64% of the patients abused only a single drug; 27% abused two, 7% abused three, and nearly 2% abused four or more drugs. There was a significant *negative* correlation between the number of drugs abused and the patient's age (r= -0.21, p<.001), which means that younger patients were more likely to abuse multiple drugs. Women reported using a slightly greater number of drugs than men (p≤.02). We found no relationship between race and the number of drugs abused.

Alcohol and cocaine were by far the substances most commonly abused by our patients. To examine possible relationships between substance of abuse, medical diagnosis, sex, and race, we sorted the patients into one of four groups based on whether they used cocaine but not alcohol, alcohol but not cocaine, both, or neither. This grouping indicated only that both were reported, not that they were used together or were the only drugs abused. We first examined whether the groups differed by medical diagnoses. Table 4, next page, shows the percentage of each category with specific diagnoses; thus, those percentages within each group sum to 100%. Chi square analysis showed a number of significant differences in the diagnoses contained in

Table 3. Type of substance abused

Substance	%
Alcohol	70
Benzodiazepines	4
Cocaine	43
Marijuana	11
Opiates	2
Other*	1

*Amphetamine, LSD, Barbiturate

Table 4. Percent of medical diagnoses as a function of alcohol and/or cocaine use*

	Alcohol	Cocaine	Both	Neither
Diabetes	62	24	10	5
HIV	25	42	29	4
Infectious disease	33	30	25	11
Ischemic heart disease	70	15	13	3
Liver disorders	86	2	10	2
Ob/gyn conditions	6	57	29	8
Other heart disease	79	2	16	2
Pancreatitis	87	0	14	0
Psychiatric disease	54	18	19	9
Renal disorders	67	7	27	0
Seizure	70	13	17	0
Trauma	50	15	35	0

*Percents are based on the total number of patients who had that illness.

the four groups. For example, pregnancy and human immunodeficiency virus (HIV) infection were the disease categories associated with cocaine as the drug most frequently abused; cardiovascular diseases, pancreatitis, infectious diseases, liver disease, and seizures were those associated with alcohol.

The four drug use categories also showed significant differences by sex and race. Table 5, at right, presents the percentages of black and white men and women within each group. The largest proportions of alcohol abusers were white men, and the largest proportion of cocaine abusers were black women.

Table 5. Reported use of alcohol and/or cocaine by sex and race*

Men	Alcohol	Cocaine	Neither	Both
White	79	3	9	9
Black	62	15	2	21
Women				
White	58	16	8	18
Black	23	41	7	28

**Neither* alcohol nor cocaine; *Cocaine* but not alcohol; *Alcohol* but not cocaine; *Both* alcohol and cocaine.

Of the patients seen, 21% had private health insurance, 19% had Medicaid, and 4% had Medicare; 47% had no third-party coverage; 11% had no third-party coverage indicated at the time of the survey. These differences in insurance coverage by race were significant: 44% of whites had private insurance and 31% had no coverage; 20% of blacks had private insurance and 55% had no coverage.

Table 6, at right, shows recommendations made by the SACL team for continued treatment of substance abuse (expressed as a percent of all recommendations). The possible effect of race and sex on recommendations for continued treatment was examined by chi square testing. Sex of the patients was not a relevant factor, but race was; 49% of black and 22% of white patients were referred to public outpatient services ($p<.001$); although identical percentages of blacks (32%) and whites (32%) were referred for treatment in a special medical/psychiatric (dual diagnosis) ward at Duke.

Table 6. Referrals made by the Substance Abuse Consult (SACL) team

Treatment	%
Dual diagnosis ward	28
Infant care	8
Narcotics Anonymous and Alcoholics Anonymous	4
Public detoxification program	1
Public inpatient	4
Public outpatient	35
Private inpatient	1
Private outpatient	7
Other	12

Discussion

We have already noted the high prevalence of reported substance abuse among hospitalized patients.[2-4] Available research strongly suggests that abuse of alcohol or other drugs plays a causal role in the illnesses for which patients are hospitalized, but even in such cases, the diagnosis of substance abuse is rarely made or appropriately treated.[13,14] Failure to attend to such an important causal factor increases the likelihood of disease relapse and rehospitalization.

Ignorance about substance abuse significantly affects health care costs at a time when these are a matter of national concern. Substance abuse leads to or exacerbates a number of acute (such as myocardial infarction, acute pancreatitis, and hepatitis) and chronic (such as cirrhosis and AIDS) medical conditions. Treatment of some of these conditions includes expensive admissions to intensive care units or leads to surgical procedures like heart valve replacement or liver transplantation. Failure to identify substance abuse means that the patient will almost surely continue to abuse the drug after discharge—a waste of health care dollars spent on their (partial) treatment. Identification and treatment of alcoholism lowers overall total health care utilization and costs.[15]

The significance of studying consultation requests. Our study of requests for consultation does not provide information about the prevalence of substance abuse among hospitalized patients. Consultation requests depend on a variety of factors including the sensitivity of physicians to substance abuse, their ability to diagnose substance abuse, their feelings about the need or value of consultation, their familiarity with the SACL service, the patient's attitude about having a substance abuse consultation, and many others. As a result of these factors, the prevalence of substance abuse cannot be inferred from our data. Nevertheless, the information we can glean from our analysis is revealing.

Most of our referrals came from obstetrics and gynecology, internal medicine, and psychiatry services. The latter is not surprising since 40% to 60% of psychiatric patients reportedly meet diagnostic criteria for substance abuse.[16] Drug abuse itself may induce major mood disorders and psychoses, but in addition, drug abuse significantly interferes with pharmacological and behavioral treatment of various psychiatric disorders.

Drug abuse by pregnant mothers is extremely important since it endangers not only the mother but also her child.[11,12] For this reason, the SACL team has developed very close relations with the obstetrics department. Most of the pregnant women referred to our service were cocaine users. We have taken the strong position that any drug abuse by a pregnant female is justification for referral even in the absence of any obstetrical complication.

The anatomy of drug abuse. Alcohol was the drug most commonly abused, followed by cocaine and marijuana. Thirty-six percent of our patients used more than one drug. There was a significant tendency for younger and female patients to use a greater number of drugs. A larger percentage of cocaine and combined cocaine/alcohol abusers were black, although more of the alcohol abusers were whites, but there were no differences according to sex.

Overall, alcohol was the most common drug of abuse, and most of the medical diagnoses, especially pancreatitis, were associated with alcoholism. The only conditions associated more often with cocaine abuse were HIV infection and pregnancy. Diagnoses of infectious disorders (excluding HIV) were made in similar percentages of cocaine users (30%) and alcoholics (33%). More than 50% of the patients carried more than one diagnosis. Psychiatric disorders were more common in women; cardiovascular disorders, ischemic heart disease, liver disorders, and traumatic injury were more common in men. Although it is rumored that alcohol "protects" against ischemic heart disease, we saw patients with coronary disease and alcoholism. And since alcoholism is one of the most common causes of liver cirrhosis, we saw several potential liver transplant patients who suffered from alcoholism (in part because the liver transplant team now screens for substance abuse).

Long-term treatment. More than half (55%) of the patients seen in consultation were referred to an outpatient facility for continued substance abuse treatment. Since no significant difference in outcome has been demonstrated between inpatient and outpatient treatment of substance abuse,[17] most treatment is provided in outpatient settings. It might therefore seem surprising that we recommended such a relatively large percentage of our patients (45%) for inpatient treatment. This reflects the medically complicated cases we saw, patients who often had co-existent diagnoses of substance abuse and a serious medical or psychiatric condition. Inpatient stabilization was required prior to outpatient treatment.

Although substance abuse treatment is not invariably effective, patients with substance abuse can be helped through a number of interventions.[18,19] Even a single session devoted to the discussion of the importance of abstinence has been shown to be effective.[20,21] Alcoholics who achieve sobriety lower their risk of dying.[19] Many patients recover with the assistance of self-help groups such as Alcoholics Anonymous and Narcotics Anonymous. Others need treatment in specialized units.[22] Those who do not respond even to inpatient treatment may need to live in a group home.[23] Patients with serious cognitive effects and others who are unable to participate in discussions and group therapy sessions should be placed in nursing homes where access to alcohol and drugs is cut off. And, of course, many substance abusers suffer from other psychiatric disorders that require separate treatment.[16]

Lessons from the SACL service. The Duke SACL service is the first of its type in North Carolina. It helps physicians recognize, diagnose, and manage substance abuse. In many cases where substance abuse is suspected, the patient is in denial and the treatment team needs expertise to deal with denial. Hospitalization for a significant medical problem often provides the best time to address the substance abuse issue, not only with the patient but with the family as well. The SACL team has developed the expertise to address such issues with the patient and the family while being sensitive to the patient's emotional reactions. In many cases, the team has been able to get patients enrolled in continued substance abuse treatment. In some cases, however, the denial remains unbroken, even at the time of discharge. Fortunately, weeks or months after the discharge, many of these patients contact the team for more discussions and advice concerning substance abuse treatment.

The single most difficult problem the SACL team encounters is shortage of inpatient and outpatient substance abuse treatment facilities that are willing and able to care for medically sick substance abusers. Several inpatient facilities are not equipped to deal with co-existing medical conditions, and many freestanding substance abuse clinics and group homes have only minimal medical support.

In general, the SACL team has received many more referrals from medical than surgical specialties, with the possible exception of orthopedics/trauma. Of course, the referral patterns reported here depend on the sensitivity of individual physicians about substance abuse and this varies widely from individual to individual and with time. Fortunately, the number of consultation requests received in 1993-1994 were much higher than the number reported in this study, suggesting that awareness of our services is growing. Although the SACL team did not participate in the care of all patients with substance abuse at Duke Medical Center, significant progress has been made in identification and treatment of substance abuse among Duke inpatients. Other medical centers may find that similar substance abuse consultation services could help doctors treat this common, serious, and often "invisible" scourge. ❑

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AIR FORCE

Carolina Physician's Bookshelf

William Friday: Power, Purpose, and American Higher Education
Link, William A. Chapel Hill: University of North Carolina Press, 1995, ISBN 0-8078-2167-5, 494 pages, $29.95

Reviewed by Eben Alexander, Jr., MD, Professor Emeritus, Department of Neurosurgery, Bowman Gray School of Medicine, Winston-Salem, and Journal *Associate Editor*

On first reading of this nearly 500-page biography, I thought that it should be two books, one about Friday, the person, and the other about all the significant political and educational crises he endured during his term as president of the University of North Carolina system.

Link compiles information from more than 200 interviews and other sources in the book, and there are nearly 70 pages of notes in the back that are quite interesting in themselves. This is a carefully researched document, and I think it will be of interest to students of North Carolina and university history.

It would be difficult to describe Friday better than Link does in his introduction, which summarizes the book in a compact six pages: "...Friday's unique leadership and contributions arose from a native intelligence, an innate political ability, an informal and non-bureaucratic style, and, perhaps above all, a simultaneously gregarious and sensitive personality. As UNC president, he was guided by two overriding and sometimes conflicting considerations. The first was to further the 20th-century public mission of the University of North Carolina. UNC, he always believed, served a civic responsibility: to aid in the economic and political modernization of the state. UNC was deeply immersed in the political structure and in the most significant public debates about North Carolina's future. The second consideration, however, ran against the first, and that was to protect the inhabitants of the multicampus system—chancellors, faculties, and students alike—from outside intrusion."

Despite Friday's problem-solving skills, many accused him of stalling implementation of court-ordered racial integration in the 1960s. UNC had experienced major upheavals several years earlier: avowed Communists were not allowed to address the student body, and students staged sit-ins for racial equality and demonstrated against the Vietnam War. This was a tumultuous time for the University and for Friday, but his overwhelming ambition was to keep UNC free and open, to permit freedom of speech, and to eventually to bring peace. Link describes this on page 158:

"Bill Friday's response to the challenge of student activism in the 1960s provides a clear example of his leadership and administrative style. The line of consistence throughout remained Friday's commitment to protecting academic independence from political intrusion, whether in legislative restrictions over free speech or in gubernatorial use of police force to quell campus rebellion. Friday was engaged, however, in a delicate juggling act—trying to balance an absolute right to free speech versus uncompromising anti-Communism, student insistence on racial equity, and the incomprehension with which North Carolina's power structure viewed the campus rebellion."

Link tells us that Friday, like his idol Frank Porter Graham, is an affable man who inspires confidence. In delving into his past, Link has meticulously outlined Friday's upbringing and his relationships with his parents and grandparents. It was his parents' ambition that he receive a good education, and, in spite of some problems, he did just that, eventually graduating from North Carolina State and UNC-Chapel Hill's School of Law.

As Link implies, Friday's associations with University and political leaders probably helped forge his gregarious and sensitive personality, his effective "behind the scenes" management style, and his unselfishness in garnering prestige for the University rather than himself.

Friday remains active in public television and is head of the William R. Kenan, Jr., Foundation. His admirers—even his detractors—will enjoy this book, and it will be helpful to state and university historians who chronicle the tumultuous latter half of the 20th century. We hope that he will continue to contribute to the welfare of the University and the state as he has in the past. ❑

Continued on page 338

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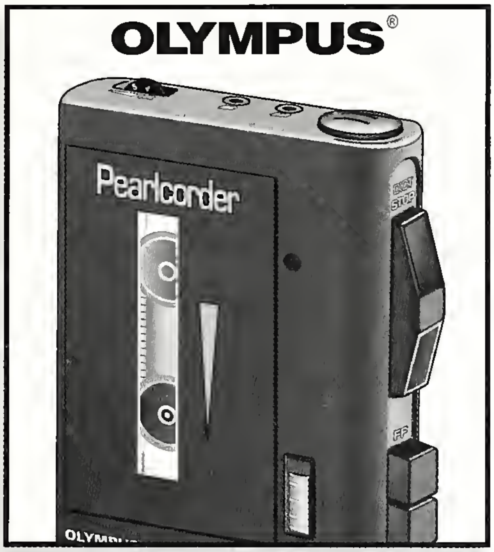

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A Drive in the Autumn Mist

continued from page 328

into a corner with no way out, to "fight like hell." Now I was almost afraid to give my own son the same advice; there are so many handguns in schools, so many conflicts that no longer end in mere fisticuffs and fat lips.

A Road Less Traveled

We who live in this paradise, this Eden, this North Carolina, are blessed. Yet in the midst of our splendor, we find the metastases of violence. Life is too short as it is; we have too brief a span of years in which to enjoy a misty autumn day, a formation of overflying geese, lunch in a corner restaurant with friends, the touch of a spouse, the smiles of our children.

Walt Kelly said that "We have met the enemy and he is us," but I don't think so. The problem that we face, as physicians and as human beings confronting an epidemic of violence, is how to teach our children, our patients, everyone we meet and yes, even ourselves, that life is sacred, that we must treat everyone as we ourselves want to be treated. Until the golden rule, this basic tenet of life, is woven into the very souls of our citizens from infancy onwards, I look forward with dread to other drives that I will have to make through the autumn mist. ❑

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Tattoo Removal Using the Alexandrite Laser

Carlos Garcia, MD, and Robert E. Clark, MD, PhD

Every major culture has used tattooing for ornamentation, group identity, honors, religious purposes, or political statements. Tattoos have also had less honorable connotations, such as the identification of slaves, prisoners, criminals, rebels, and the psychologically impaired.[1]

Traumatic tattoos can result from automobile accidents, and explosions.[2] In medicine, tattoos may be used for sun protection, to denote body landmarks, to recreate eyelashes or eyebrows after alopecia from trauma or other causes, to simulate eyeliner, and in reconstruction of the areola after mastectomy.

The prevalence of tattooing is difficult to estimate. Reports vary widely, from 65% of individuals in federal correctional institutions in the US to 2.5% in the general population in Sweden. Clearly, the psychological implications of tattoos must be considered in the societal and cultural context of the patient.[3] There is little doubt about the popularity of tattooing, especially among music and movie stars, sports figures and their devotees, and military personnel. But as long as tattoos continue to be applied, there will be a corresponding desire to have them removed. Therefore, it is important that doctors know about tattoo removal in order to provide patients with proper recommendations.

Getting Rid of Tattoos

There are many techniques for removing tattoos (Table 1 , at right). The ideal therapy would be one that produced little discomfort, minimized scarring, and required few visits to the physician. Of the methods currently available, lasers are the most effective. Carbon dioxide,[4] and Argon, Ruby, and ND:YAG lasers[5] have all been used, but the Q-switched Ruby laser has been the most extensively studied.[6,7] The recently introduced Alexandrite laser[8] gives results similar to the Q-switched Ruby laser. We report here our results with the removal of a professionally applied tattoo using the Alexandrite laser.

Our patient was a 24-year-old healthy white woman who had been professionally tattooed eight years earlier. She was asymptomatic and had experienced no complications from her tattoo but wanted it removed for cosmetic and personal reasons. Examination showed a 4 cm black and red professional tattoo of the left inguinal crease (Fig. 1, next page, top photo).

We treated her with the Alexandrite laser. Maximum energy fluences ranged from 7.0 joules to 8.0 joules. Partial fading of the black pigment was achieved after four treatments (Fig. 2, next page, middle photo), and complete fading after eight sessions (Fig. 3, next page, bottom photo). No scarring was evident. The red portions of the tattoo responded only partially to treatment with the Alexandrite laser. Complete removal of the red dye required the additional use of the pigmented lesion dye laser.

Table 1. Tattoo removal techniques

- Surgical excision
- Dermabrasion
- Chemical peel
- Salabrasion
- Cryosurgery
- Electofulguration
- Laser surgery

Table 2. Composition of pigments in tattoos

Indian ink or ash	(black)
Cadmium	(yellow)
Cobalt	(blue)
Chromium	(green)
Manganese	(purple)
Mercury	(red)
Zinc oxide	(white

Comment

The Alexandrite laser emits red visible light with a wavelength of 755 nm. The light from this laser selectively targets tattoo pigment and melanin. It has been shown effective for the

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Dr. Garcia is a Dermatologic Surgery Fellow and Dr. Clark is Director, Dermatologic Surgery, Box 3915, Duke University Medical Center, Durham 27710.

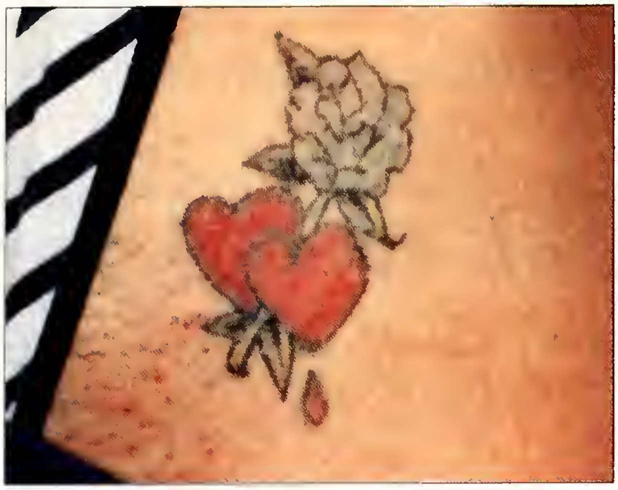

Fig 1: Professional tattoo on left inguinal crease.

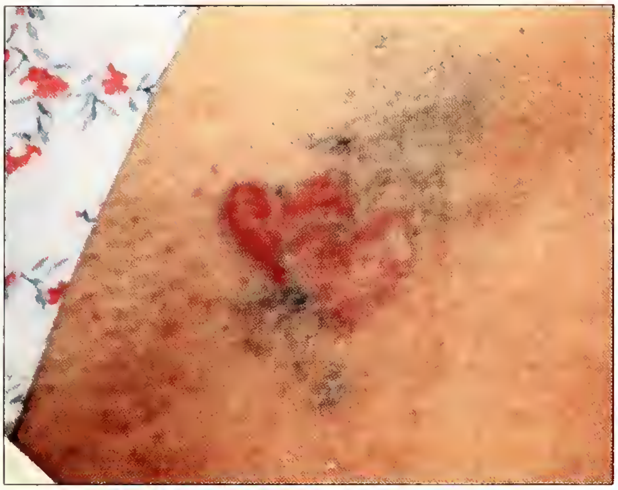

Fig 2: Partial fading after four treatments.

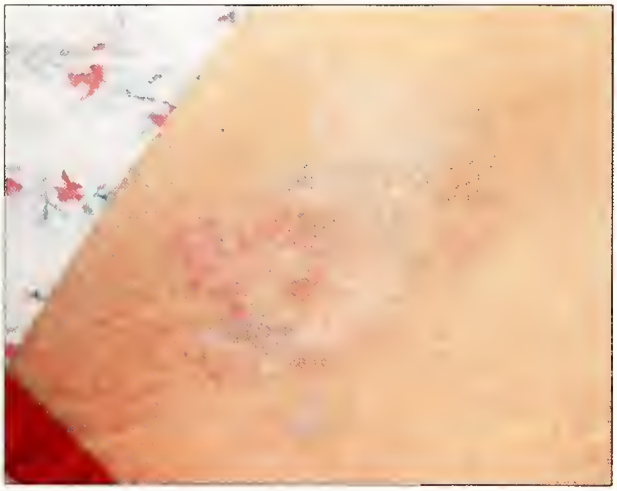

Fig 3: Complete fading after eight treatments.

removal of blue and black pigmented tattoos without causing scarring.[9]

Removal of amateur tattoos is even more satisfactory than with professional tattoos because of differences in the composition of pigments (Table 2, previous page), the denser pigment used by professionals, and the unevenly distributed pigments in amateur tattoos. Blue and black respond best; green and red, less well. Yellow pigments generally respond poorly, due partially to the presence of titanium dioxide, which reflects the laser light. Caution must be exercised when dealing with tattoos containing white pigments, because laser treatment can turn these areas black.

The differences in response among various pigments are the result of their basic composition and the laser's light wavelength. The precise mechanism by which lasers cause tattoos to fade is not clear. It may result from photomechanical disruption of pigment granules, which are then cleared by macrophages, or from alteration of the optical properties of the pigments by photoacoustic, photothermal, or photochemical effects.[10,11]

Treatment with the Alexandrite laser is mildly painful but well tolerated by most patients. The discomfort is similar to that produced by a rubber band snapped against the skin or, like some say, being splattered with bacon grease. Usually no anesthesia is required. The laser pulses produce an immediate but transient whitening of the skin. Occasionally the epidermis is disrupted and minor bleeding occurs. There may be blistering, often followed by mild crusting or scaling that lasts for about a week. Post-treatment care consists of daily cleaning with soap and water and topical application of antibacterial ointment (bacitracin, polisporin, etc.). Maximum fading occurs after four weeks. Multiple treatments are needed (some patients may require 10 or more sessions). Cost per session ranges from $250 to $500. Tattoo removal and treatment are usually not covered by insurance companies.

There are several ways to remove tattoos, but none is 100% effective or safe. Surgical excision is suitable for small tattoos (usually less than 2 cm); for larger tattoos a multistage procedure is needed and there is a potential for scarring. Dermabrasion, chemical peeling, salabrasion, cryosurgery, and electrosurgery can work but also cause scarring. They are therefore not the treatment of choice or recommended for cosmetically important areas.

The Alexandrite laser provides an effective and safe means of tattoo removal. The potential for scarring is minimal and treatment is well tolerated without the need for local or systemic anesthesia. However, multiple sessions are needed, the treatment is expensive, and red, yellow, and white pigments respond poorly. ☐

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Carolina Physician's Bookshelf

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Medical Spanish for Every Situation

Monroe, Gary L, and Herrada-Monroe, Nellie. Houston, TX: Houston-Magellin Publishing Co., 1994, ISBN 0-962-8241-1-9, $84.95

Reviewed by Gustavo S. Montana, MD, Moore Regional Hospital, Pinehurst, and Consulting Professor, Department of Radiation Oncology, Duke University Medical Center, Durham

Medical Spanish teaches useful phrases to individuals caring for Spanish-speaking patients. Accompanying the book are instructional audiotapes, which were not provided.

Medical Spanish deals with the most common situations encountered in an outpatient setting. The book's educational technique is based on a method of learning a language by listening and learning whole phrases rather than studying only vocabulary and grammar. Useful phrases are provided for brief interrogation of the patient and for explanations of a physical exam, and x-ray, surgical, and anesthesia procedures. An appendix contains a glossary of practical vocabulary, common verbs, anatomic words, and basic phonetics.

Although this book will not prepare a health care provider for dealing with complex medical situations in Spanish, it supplies a wide range of simple phrases and words that can be used to pose questions and to explain procedures to patients and their relatives. Phrases are simple, direct, and would be easily understood by a patient. Answers elicited by the questions are expected to be simple (positive or negative) for the examiner in order to communicate with the patient, unless the examiner is assisted by a translator.

I highly recommend this book to anyone contemplating spending some time in a Spanish-speaking country or having to deal with Spanish-speaking patients frequently. Despite a few misspelled words and other words that may not be as appropriately chosen for certain situations, this book serves its intended purpose. ❑

Book review editor is Edward C. Halperin, MD, Box 3085, Department of Radiation Oncology, DUMC, Durham 27710.

CASE REPORT

Ophthalmoscopic Findings of Diabetic Retinopathy

Monica A. De La Paz, MD

Fourteen million Americans have diabetes mellitus; about half are unaware that they have the disease. Among the many organ-system complications of long-term diabetes is vision loss due to involvement of the retina. This is a major health problem and a source of great personal disability for those affected. About 12% of new cases of blindness a year in the US are due to diabetes mellitus. Diabetics are 25 times more likely to develop blindness than the general population. Despite the great risk—and the availability of effective treatment—affected individuals can be asymptomatic for very long periods during which time they can become blind.

It is important for physicians who care for diabetic patients to understand that vision loss due to diabetes often can be prevented by appropriate evaluation and treatment by a qualified ophthalmologist. Therefore, regularly scheduled screening examinations are indicated. In many instances, the primary care physician may be able to note changes in the fundus of the patient using a hand-held direct ophthalmoscope. Although no substitute for regularly scheduled, thorough funduscopic examinations through a dilated pupil by a qualified ophthalmologist, I believe that primary care physicians should be familiar with the use of the direct ophthalmoscope and the significance of identified changes.

This paper briefly summarizes the nature of common changes noted in diabetic retinopathy and points out some features that the ophthalmologist evaluates.

The Diabetic Fundus

Figure 1, next page, top photo, depicts a fundus photograph obtained through the dilated pupil of a 50-year-old woman with a 15-year history of insulin-dependent diabetes mellitus. The patient came for a routine screening examination; she had no complaints about her visual acuity. On examination, we noted a preretinal hemorrhage that obscured the detail of the underlying optic disc (small solid arrow in Fig. 1). The hemorrhage is a result of neovascularization of the disc, the lacy delicate vascular network on the disc surface (large solid arrow). These abnormal vessels are thought to develop because of ischemia.

In addition, we could see dot-like intraretinal hemorrhages (a manifestation of microvascular incompetence) within the substance of the retina (open arrow). These "dot hemorrhages" are a common finding in diabetic retinopathy, and do not have the ominous immediate prognosis that neovascularization does.

Fluorescein Angiography

In order to elucidate the extent of diabetic retinopathy, ophthalmologists caring for diabetic patients will often use intravenous injection of sodium fluorescein. Specialized photographic techniques allow the vasculature of the fundus to be visualized in a time sequence as the fluorescein flows through the retinal vessels (and leaks out of damaged vessels). The "fluorescein angiogram" gives the ophthalmologist additional information that can be used to establish visual prognosis. Figure 2, next page, middle photo, shows such an angiogram in our patient. Fluorescein appears white in the photographic sequence, and the changes of diabetic retinopathy can be readily demonstrated. The small dots of hyperfluorescence (large solid arrow) represent microaneurysms.

Microaneurysms, one of the earliest changes found in the fundus of patients with diabetic retinopathy, are small outpouchings of retinal capillaries. They look like small red dots on fundus examination, but can be seen more easily on fluorescein angiography. Microaneurysmal outpouchings can lead to abnormal exudation of blood products into the retina. Such exudation can lead to decreased visual acuity if the macula is involved.

Featureless zones may be difficult to appreciate with the direct ophthalmoscope. These zones represent areas of ischemia due to closure of the retinal capillary bed and are readily demonstrated

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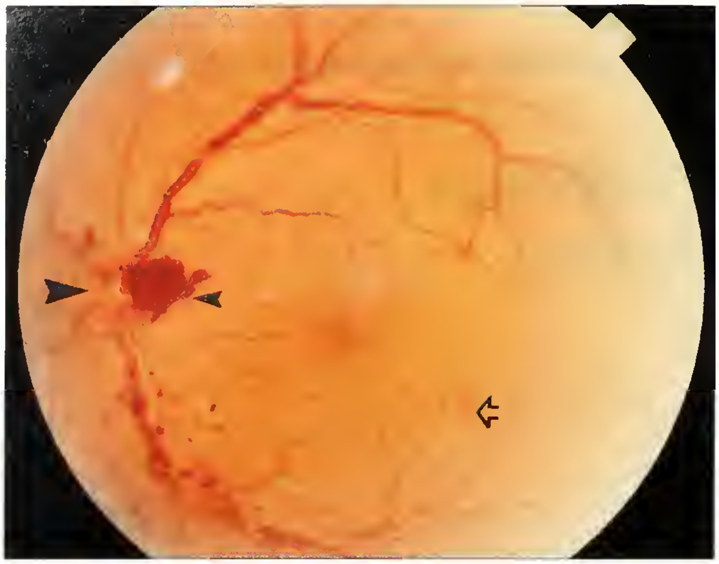

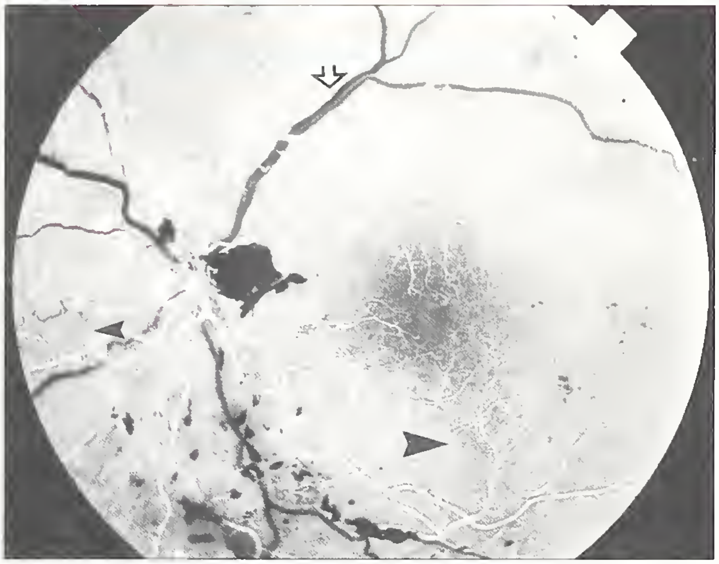

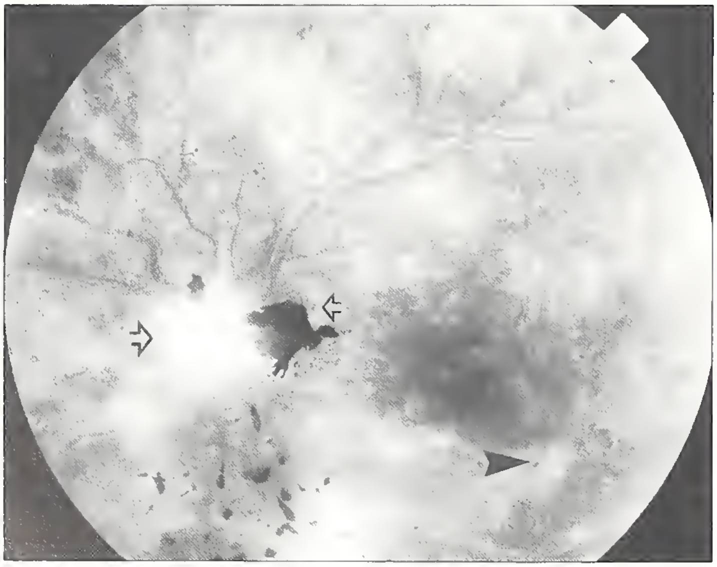

on fluorescein angiography where they appear as relatively hypofluorescent areas (small solid arrow in Fig. 2). In our patient, the retinal capillary bed of the paramacular region is relatively intact, which accounts for her preserved visual acuity (and the absence of symptoms despite substantial and serious retinal change). Figure 2 also shows the retinal veins, which are beginning to fill with fluorescein at this stage of the angiogram. The veins appear slightly dilated and have an irregular caliber (open arrow), consistent with a relatively advanced stage of diabetic retinopathy.

Later frames of the angiogram (Fig. 3, at right) demonstrate abnormal hyperfluorescence of the optic disc (large open arrow), consistent with neovascularization of the disc surface. Extensive neovascularization predisposes the patient to severe vision loss and is an indication for laser photocoagulation. The hypofluorescent blotch (small open arrow) corresponds to the preretinal hemorrhage, and blocks the view of underlying structures. Scattered areas of ill-defined hyperfluorescence (solid arrow) are consistent with leakage of fluorescein from microaneurysms during the course of the study.

Preventing Blindness from Diabetes

In many instances, vision loss due to diabetic retinopathy can be prevented. Our patient has extensive abnormalities which put her at substantial risk of severe visual loss. This risk could be cut in half by appropriate laser treatment, performed in a timely manner.

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Fig 1 (top right): Small solid arrow—a preretinal hemorrhage obscures detail of the underlying optic disc; large solid arrow—the vascular network on the disc surface; open arrow—intraretinal hemorrhages within the substance of the retina. **Fig 2 (middle right):** Small solid arrow—areas of ischemia due to closure of the retinal capillary bed are demonstrated on fluorescein angiography; large solid arrow—small dots of hyperfluorescence represent microaneurysms; open arrow—veins appear slightly dilated and have an irregular caliber. **Fig 3 (bottom right):** Large open arrow—abnormal hyperfluorescence of the optic disc; small open arrow—hypofluorescent blotch corresponds to the preretinal hemorrhage; solid arrow—areas of ill-defined hyperfluorescence, consistent with leakage of fluroescein from microaneurysms.

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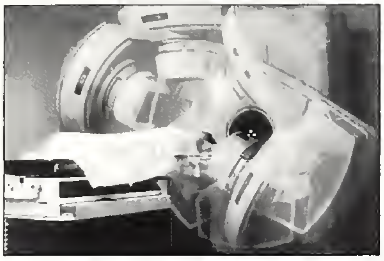

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Place: Research Triangle Park
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July 31-August 4
Duke Radiology Summer Postgraduate Course
Place: Radisson at Kingston Plantation, Myrtle Beach, SC
Credit: 25.5 Category 1, AMA (including 2.5 hours mammography)
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July 31-August 4
24th Annual Emery Miller Medical Symposium
Place: Radisson at Kingston Plantation, Myrtle Beach, SC
Credit: 20 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450 or 800/277-7654

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14th Annual East Coast Emergency Medicine Seminar
Place: Morehead City and Atlantic Beach
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Info: Division of EMS, 919/816-2154, fax: 919/816-2655

September 8
Urinary Incontinence and Voiding Dysfunction
Place: Friday Center, UNC-Chapel Hill
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Fee: $65
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Continued on next page

Continuing Medical Education
continued

September 13
17th Annual Health Law Forum
Place: Greenville
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September 15-17
4th Annual UNC/Duke Rheumatology Update
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Credit: 10 hours Category 1, AMA
Fee: $250
Info: Registrar, UNC Office of CME, CB# 7000, 231 MacNider Bldg., Chapel Hill 27599-7000, 919/962-2118, fax: 919/962-1664

September 16
9th Annual Duke Glaucoma Symposium
Place: Washington Duke Inn, Durham
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September 21-23
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Info: Janet Apter, RN, MSN, Box 3883, DUMC, Durham 27710, 919/684-4293

September 21-24
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Place: Sea Trail Resort, Sunset Beach
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Info: Beth Mixon, Coastal AHEC, 910/343-0161 ext. 312

September 28-30
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September 29-October 1
2nd Annual Joint Meeting of the NC and SC Chapters of the American College of Cardiology
Place: Grove Park Inn, Asheville
Info: NC-ACC, 4101 Lake Boone Trail, Suite 201, Raleigh 27607

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65th Annual Meeting of the Carolina Urological Association
Place: Holiday Inn, Southern Pines
Fee: $25
Credit: 6 hours Category ICME
Info: Carolina Urological Association, P.O. Box 1036, Southern Pines 28387-1036

October (date TBA)
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Place: Winston-Salem
Credit: 8.5 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450 or 800/277-7654

October 5-8
Duke Medical Alumni Weekend
Place: Durham
Credit: Category 1, AMA, pending
Info: Grace Taylor, 919/419-3200

October 7-8
22nd Alexander Spock Lung and Gut Symposium
Place: Searle Center, Duke University
Credit: TBA
Fee: $150 both days, $75 half day (physicians); $90 (allied health professionals)
Info: Dr. Joseph Marc Majure, Box 2994, DUMC, Durham 27710, 919/684-2289, fax: 919/684-2292

October 20-22
Southeastern Dermatological Society Meeting
Place: Chapel Hill
Info: Office of CME, UNC, 919/962-2118 or 800/862-6264

October 22
2nd Annual Atherosclerosis Update
Place: Asheville
Credit: 5.5 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450 or 800/277-7654

October 25-29
8th Duke Fall Ob/Gyn Symposium
Place: Grove Park Inn, Asheville
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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"The Law"

The law, as manipulated by clever and highly respected rascals, still remains the best avenue for a career of honorable and leisurely plunder. —*Gabriel Chevallier*

One of the Seven was wont to say "that laws were like cobwebs; where the small flies are caught, and the great break through." —*Francis Bacon*

Where there is hunger, law is not regarded; and where the law is not regarded, there will be hunger.
—*Benjamin Franklin*

The more laws, the more offenders. —*Thomas Fuller*

I know of no method to secure the repeal of bad or obnoxious laws so effective as their stringent execution.
—*Ulysses S. Grant*

Laws for the regulation of trade should be most carefully scanned. That which hampers, limits, cripples, and retards must be done away with. —*Elbert Hubbard*

One of the greatest delusions in the world is the hope that the evils of this world can be cured by legislation.
—*Thomas Reed*

Laws describe constraint. Their purpose is to control, not to create.
—*Tom Robbins, "Still Life with Woodpecker"*

Send aphorisms to Dr. Sexton at Box 3605,
Duke University Medical Center, Durham,
NC 27710, or fax them to 919/684-8358

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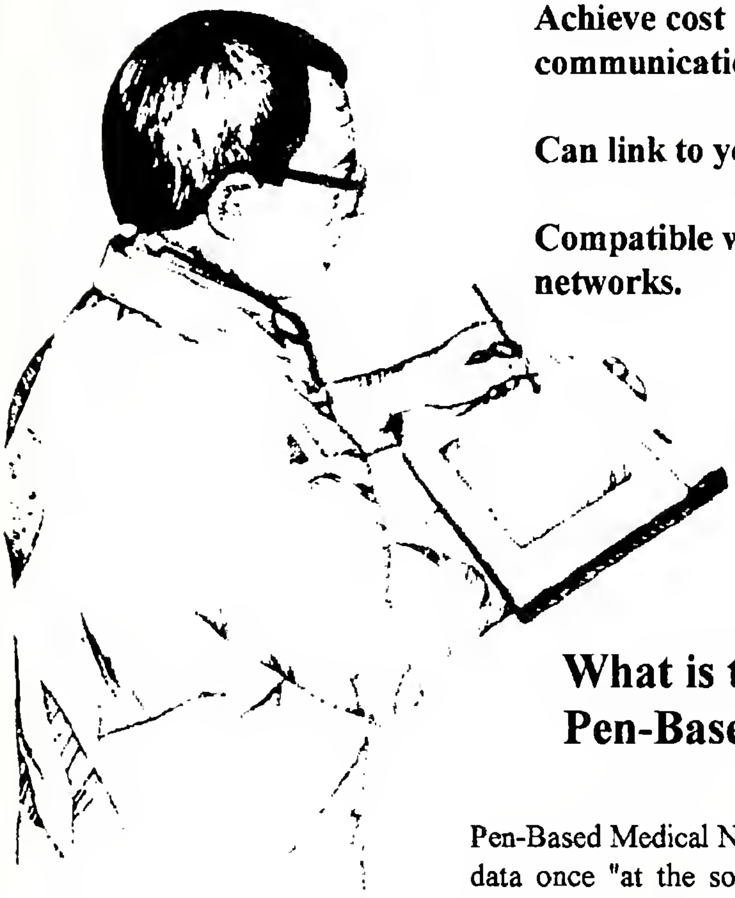

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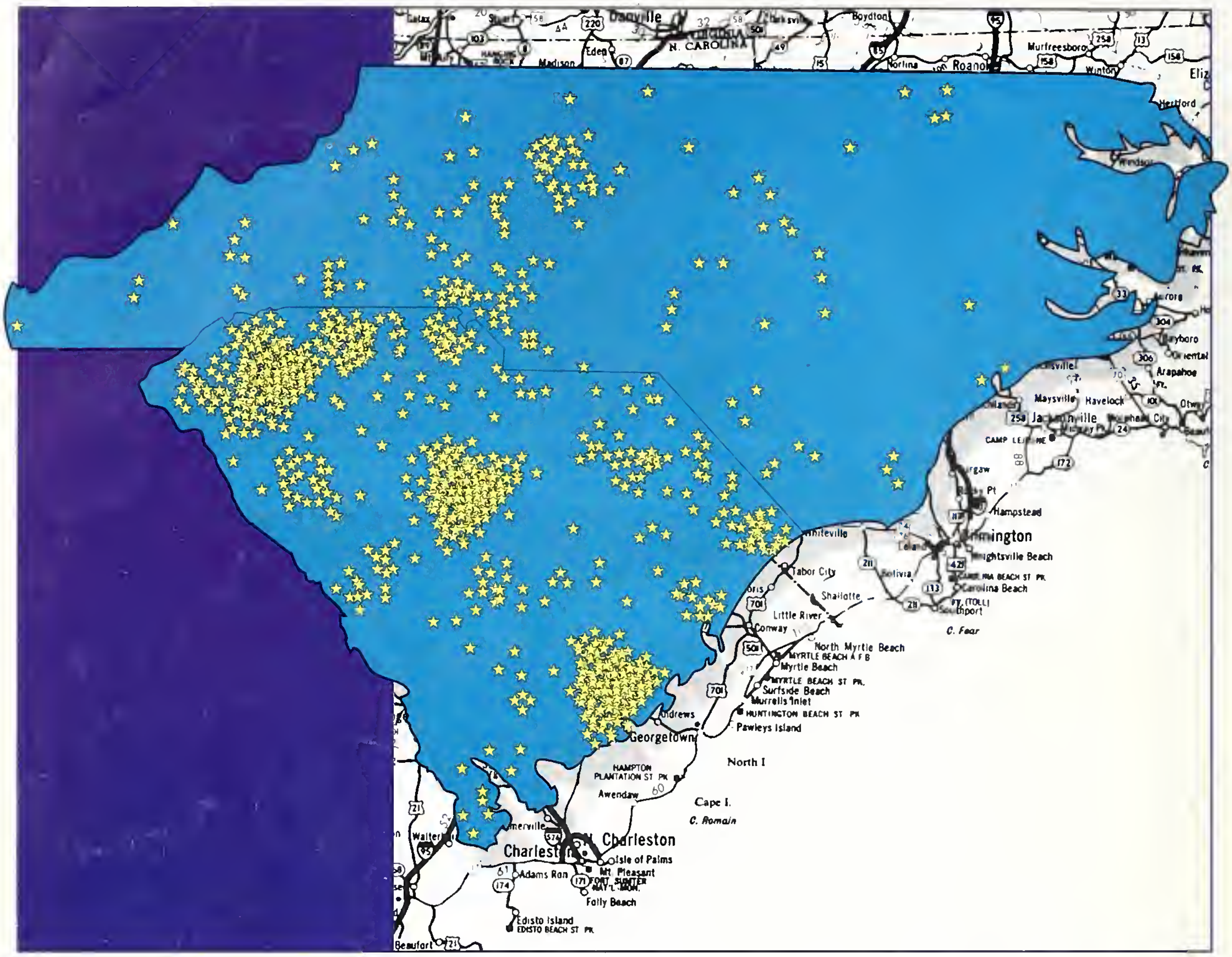

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The Official
Journal of the
North Carolina
Medical Society

August 1995
Volume 56
Number 8

North Carolina Medical Journal

For Doctors and their Patients

To Soar "with Wings, as Eagles"

The Day I Tried Hang Gliding

by Claude A. Frazier, MD

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Health Care on the Horizon:

- *Could Health Care Reform Lead to a NC Health Services Commission?*
- *Primary Care Physicians in NC: Can We Meet the Need?*
- *The Relevance of a Family Practice Residency Curriculum*

Guides to Clinical Practice:

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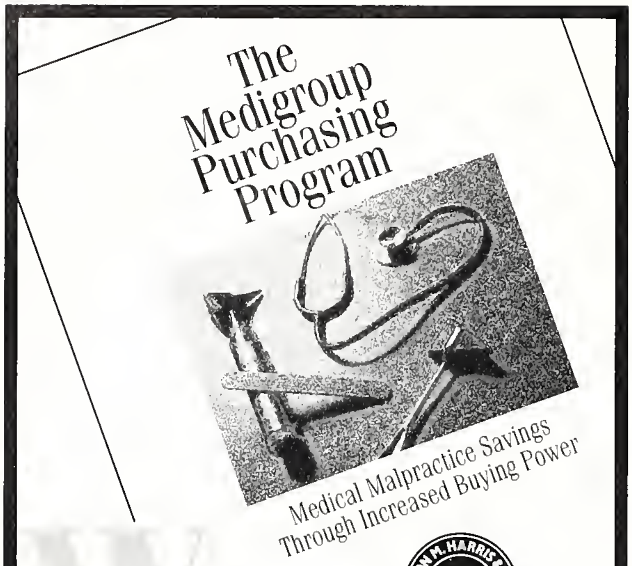
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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

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NORTH CAROLINA
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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / August 1995, Volume 56, Number 8

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Letters to the Editor

The Dangers of Being a Doctor

To the Editor:

Wow! I never realized that it was so dangerous to be a doctor until I read the May special issue, particularly the article by Dr. Frazier and her colleagues, "Occupational Hazards in the Hospital, Doctor's Office, and Other Health Care Facilities," (NC Med J 1995;56:189-195). And she hardly touched on violence in the workplace, which was covered nicely in a subsequent piece by Drs. Stenberg and Gammon ("Occupational Mental Health: Evolving Strategies for a Rapidly Changing World," NC Med J 1995;56:228-33).

The picture of the Durham Special Enforcement Team member on top of the Sumitomo building in Research Triangle Park in Drs. Stenberg and Gammon's article was especially ominous for the future of medicine and goes hand in hand with the increasing violence in emergency rooms.

Many physicians, their families, and their staff are poorly covered by insurance for mental health events. It is as if we pretend we are immune from these disorders. In fact the workplace stress and risks that Dr. Frazier outlines make us more susceptible, and we should insure ourselves accordingly. The NCMS health plan and many of the local MEWA health plans cover these types of illnesses poorly. We should do better.

Harold R. Gollberg, MD
Black Mountain Center
Black Mountain, NC 28711

From the Editor:

Dr. Gollberg sent this letter to the Medical Society via electronic mail. We soon hope to have an individual e-mail address for the *Journal*.

A response follows from the authors of the articles that Dr. Gollberg cites.

Drs. Frazier, Gammon, and Stenberg respond:

Medical professionals may inappropriately believe that they are relatively immune from illness and injury, but a systematic look at occupational risks in the health care workplace reveals a number of potential hazards. Systems to prevent occupational injury can be implemented.[1]

Workplace violence is a serious risk.[2] In a survey of US teaching hospital emergency departments, 41 of 127 respondents (32%) reported at least one verbal threat from a patient each day, and 33 (18%) reported at least one threat with a weapon each month.[3] Data from the National Traumatic Occupational Fatalities Surveillance System revealed that from 1980-1990, 522 US health care workers died from injuries sustained while working. Motor vehicle crashes accounted for 122 of these deaths; suicide accounted for 88. Homicides were the cause of death in 106 health care workers; firearms were used in 74% of these fatalities.[4] The redirection of mental health insurance benefits for violence-prone patients and their potential victims is ominous.

Our culture often views violence as a random "accident," which cannot be prevented. In the emergency department survey, only 79 institutions (62%) had security personnel present 24 hours a day, and only 51 programs (40%) provided nurses with formal training in recognition and management of aggression and violence.[3] Traditional occupational safety approaches can, however, be used to reduce health care workers' risk of violent injury. These include engineering controls such as safer facility design, the use of metal detectors, work practices such as buddy systems and escorts, and training in recognition and management of angry or violence-prone patients and family members.[5] In addition, critical incident debriefing and other counseling services need to be provided for workers who care for severely traumatized patients and for employees who experience threats or assaults.

Linda Frazier, MD, MPH
Patricia Gammon, PhD
Craig Stenberg, PhD
Division of Occupational and Environmental Medicine
Box 2914, Duke University Medical Center
Durham, NC 27710

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To Pee Or Not To Pee

To the Editor:

Dr. Neelon does a good job as editor of the *Journal*, but when I read his comment at the end of the June Physicians' Roundtable ("Urinate in the Cup, Doctor," NC Med J 1995; 56:274-8) I couldn't help but remark: Shame!

J.B. Warren, MD
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New Bern, NC 28560

To the Editor:

As a member of the Duke house staff, I have mixed emotions about the Hospital's recent decision to test all new employees (including interns) for drug use ("Urinate in the Cup, Doctor," NC Med J 1995;56:274-8). If the real intention is to make the workplace a safer environment for both fellow physicians and patients, I applaud the effort. However, the way the system is designed falls short of its goal. Numerous studies have demonstrated that drug users can sabotage test results when they have advanced notice of testing; therefore, it is unlikely that we will identify those persons who are most at risk of being a danger to others.

If we truly want to make the workplace safer, we should have random, unannounced drug testing. I presume that this was considered; it was probably rejected due to political ramifications. After all, current workers and administrators are more likely to accept a policy that exempts them.

My suggestion to Duke Hospital's Executive Committee: Pass that urine cup to everyone for a sample. Otherwise, you're not making good use of limited resources. At a time when we are having budget cuts and layoffs, don't waste time and money on a policy that does not work. If may sound nice for advertising purposes, but let's choose substance over fluff.

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To the Editor:

Welcome to the front lines of the war on drugs, doctor ("Urinate in the Cup, Doctor," NC Med J 1995;56:274-8). In this, like in any war, a lot of innocent people are going to suffer. The most significant casualty in this "war," however, is not human at all. It is that most precious of all healing powers: the doctor-patient relationship. By the government's recruitment of physicians to be "medical review officers" (what a nice euphemism for bladder cop) and the establishment of their offices as collection stations for this onerous and degrading test, the doctor-patient relationship has also gone down the toilet.

Do your patients appear anxious when you request a urine sample? Do you have to reassure them that you are only looking for infection? How is it that all patient questionnaires are checked off negative at the question of illegal drug use? (There should be 10% or more positive replies.) It is because many patients no longer can trust us. The physician is now part of the police state, in their eyes, jack boots or not. And the sacred relationship of trust is severely wounded, if not already dead.

As physicians and healers, then, it is time to stand up and "just say no!" Don't be a willing participant in a useless and futile war built on myth, oppression, and propaganda. Say no to giving a urine sample. Contracts are written by both parties, and any part can be changed or deleted: If they want you bad enough, the institution will hire you anyway. If you are forced to give a pre-employment sample, give it, but do not sign a contract that calls for random testing. A jealous colleague, disgruntled employee, or prankster could easily sink your career.

And don't jeopardize the relationship with your patients by allowing your office to be tainted by drug test collections. If you are an employee of a clinic that does testing, notify your patients in private that such collection is strictly political, not medical, and that you do not agree with it. There is no evidence that urine drug testing helps patients and may mortally harm them (getting fired is a major contributor to suicide).

Finally, if you are caught by a positive sample, fight it the real American way—with the help of a good lawyer. False positives and malicious "spiking" *do* occur. After an institution suffers some multimillion dollar lawsuits, the policies of testing without reasonable cause will quite likely be scrapped.

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Required Reading

To the Editor:

The artwork and literary sidelights that are making their way into the *Journal* are wonderful additions. The reviews of novelist Reynolds Price's book, *A Whole New Life* (NC Med J 1994;55:549-52), were especially welcomed.

There are a number of short stories by William Carlos Williams, Hemingway, and others that probably should be required reading for medical students. It may well have been done already, but an anthology of such stories that touch on the human and humane side of medicine would be worthwhile reading for physicians in training and in practice.

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Continued

"Doctoring" the *Journal*

To the Editor:

In re-reading the discussion in the February issue regarding pharmacists and patient instructions ("Counseling of Patients by Pharmacists: Blessing or Curse?" NC Med J 1995;56:115-8), I was again touched by your description of "doctoring," and it made me realize just how rarely we see any mention of this topic in these interesting times.

Nearly all of the journals and newspaper-like publications I receive now are heavily weighed down with articles on the business side of medicine, and how one should behave in order to "survive" in the 1990s. Granted, times are changing, but it is pleasant to read the *Journal* to see clinical articles and notes that have more to do with doctoring than with office management techniques.

I can read all about how to make my office more efficient, retain my patients, get them to pay up front, and whip my computer into shape in numerous other publications and seminars; I like not having to deal with this in the *NCMJ*. I feel strongly that we physicians need to be reminded, from time to time, that we are doctors, and the *Journal* should continue to fill that need. Please continue the excellent job.

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Durham, NC 27704

Guidelines for Letters

Letters must be typed, double-spaced, signed, and should not exceed 500 words. Longer letters are welcome, however, and will be considered for publication elsewhere in the *Journal*. Longer-length letters should include a 3 1/2-inch computer disk with the text written in MS DOS- or Macintosh-compatible software. Letters concerning specific articles published in the *Journal* may be forwarded to the original authors for response. All letters and responses are subject to editing and abridgment. Send letters to: *NC Medical Journal*, Box 3910, Duke University Medical Center, Durham, NC 27710, or fax to: 919/286-9219.

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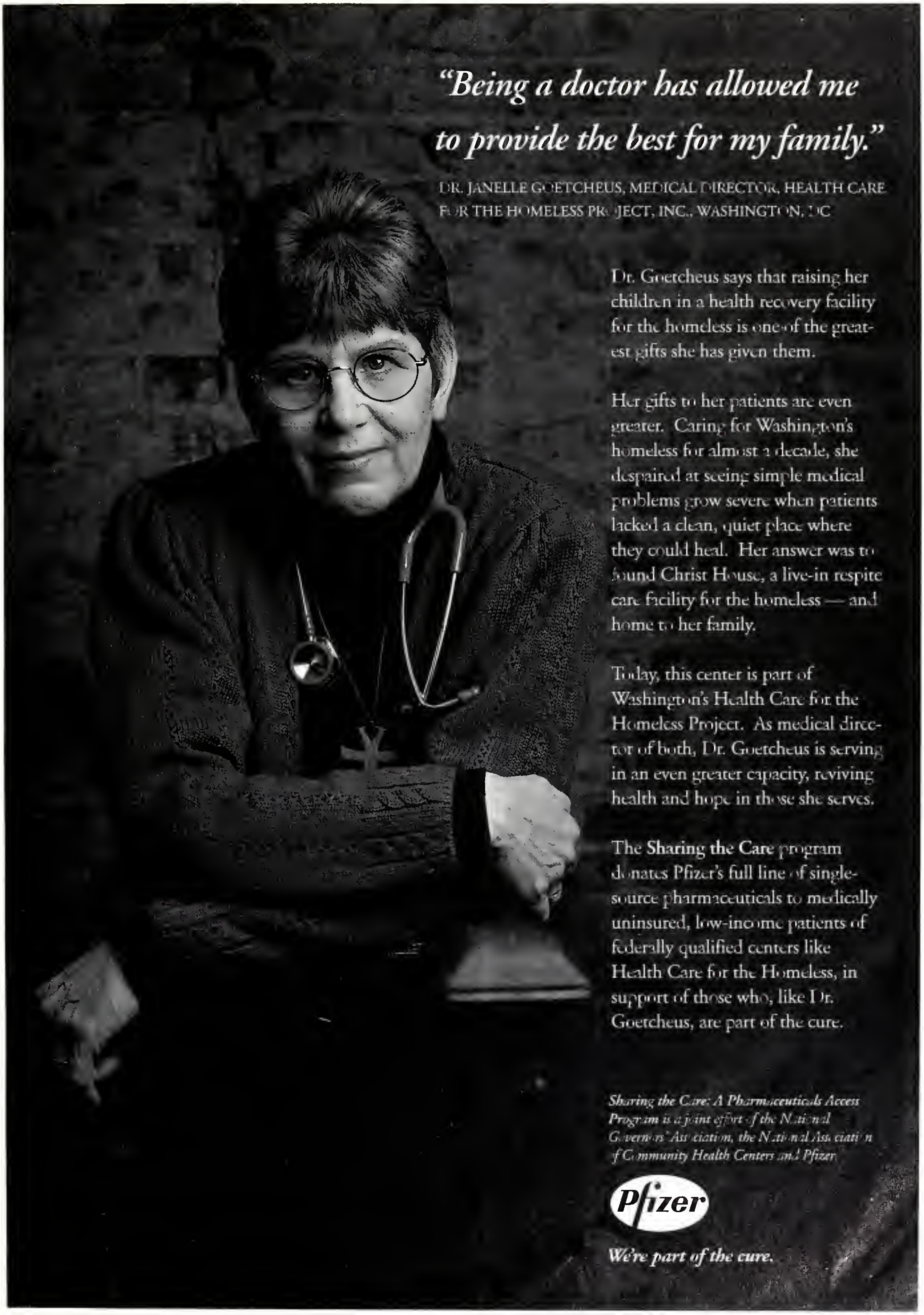

"Being a doctor has allowed me to provide the best for my family."

DR. JANELLE GOETCHEUS, MEDICAL DIRECTOR, HEALTH CARE FOR THE HOMELESS PROJECT, INC., WASHINGTON, DC

Dr. Goetcheus says that raising her children in a health recovery facility for the homeless is one of the greatest gifts she has given them.

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Today, this center is part of Washington's Health Care for the Homeless Project. As medical director of both, Dr. Goetcheus is serving in an even greater capacity, reviving health and hope in those she serves.

The **Sharing the Care** program donates Pfizer's full line of single-source pharmaceuticals to medically uninsured, low-income patients of federally qualified centers like Health Care for the Homeless, in support of those who, like Dr. Goetcheus, are part of the cure.

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Primary Care Physicians for North Carolina

How Many Are Needed? Where Will They Come From? Can the Need Be Met?

Edward J. Kobrinski, MA, Christopher J. Mansfield, PhD,
Thomas C. Ricketts, III, PhD, MPH, and E. Jackson Allison, Jr., MD, MPH

The movement to reform our health care system gives us the opportunity to reorient policies to promote primary care and the role of primary care physicians.[1] Proper attention to workforce policy and planning in primary care will contribute to the goals of improving access to care and reducing the cost of care in a managed care environment.[2]

By *primary care* we mean delivery of first-contact medicine, longitudinal responsibility for the patient whether or not disease is present, and total integration of all aspects of health—physical, psychological, and social.[3] A variety of professionals provide primary care, but those attracting greatest attention in the debate over access and escalating costs are generalist physicians—those trained in family medicine, general internal medicine, and general pediatrics.[4,5]

Generalist physicians get particular attention from groups such as the Council on Graduate Medical Education (COGME) and the Association of American Medical Colleges (AAMC). COGME, in its fourth report,[6] and the AAMC[7] both recommend that 50% of physicians should be practicing primary care. However, some experts argue that the target proportion of primary care physicians should be based on reasonable estimates of ratios of physicians to a standard geographic or institutional population.[8,9] This controversy raises the question of whether an appropriate supply of primary care physicians can be predicted given current knowledge.

In 1994, the North Carolina Health Planning Commission's Advisory Committee on Primary Care found that there were no adequate estimates of the future supply of or need for primary care providers.[10] Therefore, we undertook to investigate the numbers of primary care physicians needed for North Carolina. In this report we use data describing the current supply of physicians in North Carolina, the output of the state's four medical schools, and the productivity of primary care residencies to estimate those numbers. We contrast our projection with the proposed 50% supply of generalist physicians recommended by COGME and AAMC for the years 1995 through 2010.

Methods

Current data on the supply of generalist physicians in each county were obtained from the *North Carolina Health Manpower Databook, 1992*.[11] Data on the supply of active, licensed, non-federal generalists who graduated between 1986 and 1988, including the medical schools attended, were obtained from the Board of Medical Examiners database for 1992. (These data sources were made available by the Cecil G. Sheps Center for Health Services Research at UNC-Chapel Hill.) All North Carolina physicians, including osteopaths, who were licensed and actively practicing family medicine, internal medicine, or pediatrics in a non-federal setting were defined as generalist physicians. This definition, adapted from Kindig,[8] is the one most often used in discussions of workforce supply. We selected only generalist physicians who had graduated from one of the four medical schools in North Carolina between 1986 and

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1988 in order to estimate current additions to the supply of generalists. Selection of these three years allowed graduates enough time to complete a three-year residency, obtain a license, and establish a practice by 1992. Our data allowed us to estimate the current proportion of primary care physicians produced in North Carolina who eventually practice in the state.

Table 1. Benchmarks of actual or desirable ratios of population and physicians*

Population/ physician	Physicians/ 100,000 population	
500	200	
524	191	Estimates of total requirements by GMENAC 2000 [A=12]
538	185	Total physicians in US, 1992 [B=13]
588	170	Total physicians in NC, 1992 [C=11]
833	120	Estimate of patient care needs by GHAA-HMO [D=14]
1,000	**100**	
1,206	83	*Primary care physicians in US, 1992* [B=13]
1,456	67	*Primary care physicians in NC, 1992* [C=11]
1,500	**67**	
1,515	66	*Primary care physicians in US, HMO adjusted* [E=4]
2,000	**50**	
2,500	40	
2,989	33	*Primary care physicians, eastern NC* [F=15]
3,000	33	
3,500	29	*Shortage of primary care physicians, DHHS* [A=12]

*Benchmarks for primary care in italics; ratios used in this paper in boldface

We obtained projections of the population of each North Carolina county for the years 1995 to 2010 from the North Carolina Department of Administration. These figures and physician data obtained from the *North Carolina Health Manpower Databook, 1992*[11] allowed us to estimate the ratio of population to physician for each county for the years 1995 through 2010. Calculations of future population/physician ratios for each county were based on the supply of generalists in 1992. Our projections of physician surplus or shortage are based on the difference between the calculated population/physician ratio and the three benchmarks discussed below.

We use the ratio of population (persons) to physician because this ratio is easier to understand, particularly in discussing the sparsely populated counties of North Carolina, than the number of physicians per 100,000 population. The latter expression is useful when considering national supply of physicians and for evaluating the overall balance of specialty mix, but the two population-based ratios are equivalent. Table 1, above, shows the relationship of these ratios and includes suggested benchmarks of actual or desirable ratios for the supply of physicians.

We used the three benchmarks (generalist physician availability objectives) shown in Table 1 as targets to estimate the needs of the population during the projected time periods. The surplus or deficit of physicians in each county was calculated by subtracting currently available numbers from the target numbers of physicians for the years 1995 through 2010. Our high, medium, and low availability ratios of 1,000; 1,500; and 2,000 persons per primary care physician are roughly equivalent to the generally recommended levels of generalist physician supply based on population.[4,12,13,14] We then estimated the total number of generalist physicians needed based on the three benchmarks.

Physician supply needs and availability are influenced by retirements, deaths, between-state migration, career changes, changes in practice patterns, changes in service areas, the mix of mid-level practitioners, and differences in practice style.[12] Data on most of these variables are not available, but we were able to consider what would happen if physicians currently practicing primary care moved from counties with a surplus to those with a deficit. We made "worst" and "best" case projections by assuming two levels of relocation of the current supply of physicians: 1) no relocation from counties with a surplus to counties with a deficit of generalists (the worst-case model); or 2) relocation of enough physicians from counties with an excess to counties with a deficit to bring all counties to the benchmark (the best-case model). For the worst-case model we calculated the number of additional physicians that would be needed to bring deficit counties to each benchmark while allowing surplus counties to remain in surplus.

Neither best- nor worst-case projections of need were adjusted for the other factors known to affect future supply cited above, but Board of Medical Examiners data were used to determine the cumulative volume of NC primary care physicians who would reach retirement age (65 years) during the period of projections. No other analysis was made of the relationship between retirement of currently practicing primary care physicians and estimates of future supply needs at the county level.

Using an additive projection model for each school, we estimated the number of graduates from each of the four NC medical schools who would complete a three-year residency in a primary care specialty. We used each school's annual enrollment of new entering students to estimate the total annual number of graduates from each medical school.[16] The model accounts for the number of graduates from Bowman Gray, Duke, East Carolina University (ECU), and the University of North Carolina at Chapel Hill (UNC) who enter primary care specialties. It also considers whether or not the graduates accept in-state residency training, a decision that relates to eventual

Table 2. Projections of additional primary care physicians needed to meet availability objectives, NC, 1995-2010

Availability benchmark	Additional primary care physicians needed in counties with shortage				Relocation assumptions*
	1995	2000	2005	2010	
1,000 People/physician	+3,050	+3,390	+3,717	+4,028	Best-case
	+3,415	+3,721	+4,012	+4,289	Worst-case
1,500 People/physician	+702	+930	+1,147	+1,355	Best-case
	+1,292	+1,484	+1,668	+1,844	Worst-case
2,000 People/physician	-471	-301	-138	+18	Best-case
	+503	+576	+642	+719	Worst-case

* Best-case scenario assumes physicians will relocate from counties with current surpluses to those with current deficits until surplus counties are drawn down to the benchmark. Figures represent the residual statewide surplus (-) or deficit (+) at each benchmark. Worst-case scenario assumes no relocation of physicians.

practice in the state and is a slightly better predictor than attendance at in-state medical schools of whether physicians will practice medicine in North Carolina.[17,18]

To make our projections, we first used information in the Board of Medical Examiners file from 1986 to 1988 to determine the historical percentages of the North Carolina graduates who accepted a residency inside or outside North Carolina and who eventually practiced primary care in the state. This allowed us to estimate the current in-state retention rates of graduates from each NC medical school. We then supposed that 50% of medical school graduates were to enter primary care by 2001, a popular target proportion of workforce reform. Non-federal physicians in primary care practice in North Carolina in 1992 who graduated from medical schools outside North Carolina between 1986 and 1988 were also analyzed by state of residency training. No projections of graduates of schools outside North Carolina were attempted because we had no information about the total number of graduates from such schools.

Results

Table 2, above, shows the projected number of generalist physicians needed in each of the four selected years to achieve each benchmark ratio of population to physician. Data are presented as best-case, where counties in need are first supplied by physicians relocating their practices from counties with surpluses, and as worst-case, where no relocation of the current supply of physicians occurs. At a population/physician ratio of 2,000:1, the best-case scenario shows a state surplus of generalists until the year 2010, when it experiences a small deficit. On the other hand, the worst-case scenario (no relocation between counties) shows an immediate and worsening statewide shortage of generalists that ranges from 503 in 1995 to 719 in 2010. At the lower population/physician ratios of 1,500:1 and 1,000:1 both best-case and worst-case scenarios predict immediate shortages in 1995 and a two- to six-fold increase in shortages by 2010. At a 1,000:1 ratio, North Carolina would need more than 4,000 generalist physicians by

Table 3. Average annual number of primary care physicians and percent of all graduates (1986-1988) practicing in NC, 1992

	Location of residency					
	In-state		Out-of-state		Total	
Medical school (n=Graduates/year)	PCPs*	%	PCPs	%	PCPs	%
UNC-Chapel Hill (n=160/year)	9	6%	4	3%	14	9%
Bowman Gray (n=100/year)	5	5%	4	4%	9	8%
Duke (n=110/year)	4	4%	0	0%	4	4%
East Carolina (n=72/year)	9	13%	5	6%	14	19%
All NC medical schools (n=442/year)	27	6%	13	3%	41	9%
All other schools	30	NA	32	NA	62	NA
All schools	57	NA	45	NA	103	NA

*PCPs = Primary Care Physicians, non-federal physicians licensed in North Carolina since graduating from medical school between 1986 and 1988 and actively practicing in the state in 1992. Source: NC Board of Medical Examiners database, 1992.

2010, even with complete county-to-county relocation.

Table 3, previous page, shows the average annual contribution of new primary care physicians from the four North Carolina medical schools and from all schools outside the state during 1986-1988. The numbers and percentages of total enrollment by medical school represent the yearly averages for classes graduating from 1986 to 1988. Over the three years, an average of 27 graduates of North Carolina medical schools completed an in-state residency and remained in the state to practice primary care in non-federal settings. This was more than twice as many as the annual average of 13 graduates who accepted a residency outside the state and then returned to practice here.

The two state-supported schools (ECU and UNC) had the highest annual proportion of graduates applying to practice primary care in the state (19% and 9%, respectively). From 1986 through 1988, the four NC medical schools produced an average total of 41 primary care physicians (9% of the 440 total graduates) who practiced in NC in 1992.

Graduates of schools outside the state provided North Carolina with more (annual average = 62) primary care practitioners than in-state schools. About half of the graduates completed residency training inside the state.

Figure 1, below, displays the relationship between the number of additional generalist physicians needed at the three benchmark ratios for each year, assuming no relocation between counties (worst-case scenario), and the cumulative number of generalists supplied by the four medical schools over the period. Figure 1 assumes no change in the present proportions of graduates who accept residencies in the state and who enter primary care practice. Under these assumptions, the present supply of generalists from North Carolina schools will meet only the 2,000:1 population/physician ratio in 2010, and then only if the new graduates practice only in counties with projected shortages. The 1,000:1 benchmark is virtually out of reach—the supply won't meet even one-fifth of the need by the year 2010.

Figure 2, at left, illustrates the increase in the supply of new primary care physicians that will occur if 50% of North Carolina medical school graduates enter primary care by 2001. Such a change in the aggregate production rate of graduates who will practice primary care predicts that the 2,000:1 ratio will be met in 2003, but even here the 1,000:1 ratio still seems out of reach.

Figures 1 and 2 also include the cumulative number of primary care physicians who will reach age 65 during the projection period. The numbers of physicians who will reach retirement age predominate somewhat in counties projected to have shortages. The numbers of physicians expected to be lost to retirement clearly exceeds the projected supply of new primary care physicians from North Carolina, even if there were to be an increase in the aggregate production of graduates entering primary care.

Figure 3, next page, displays the geographic distribution of 1986-1988 graduates of North Carolina medical schools who were practicing in primary care in

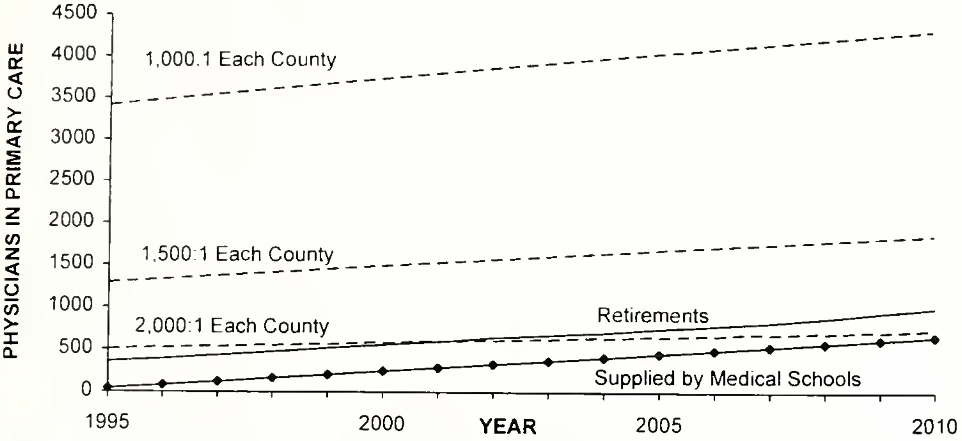

Fig 1: Projection of primary care physicians supplied to NC by its four medical schools compared to levels of county need and retirements, 1995-2010: production at current rates.

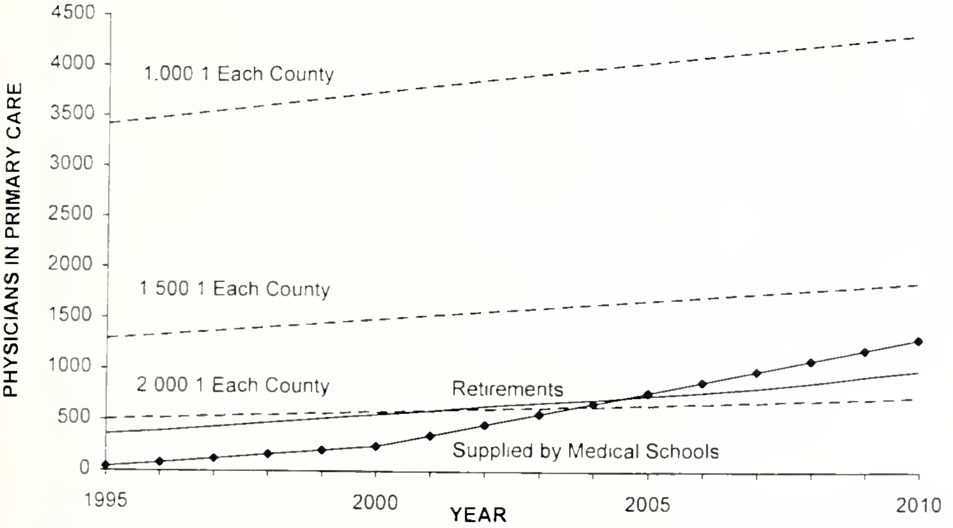

Fig 2: Projection of primary care physicians supplied to NC by its four medical schools compared to levels of county need and retirements, 1995-2010: production at 50% primary care.

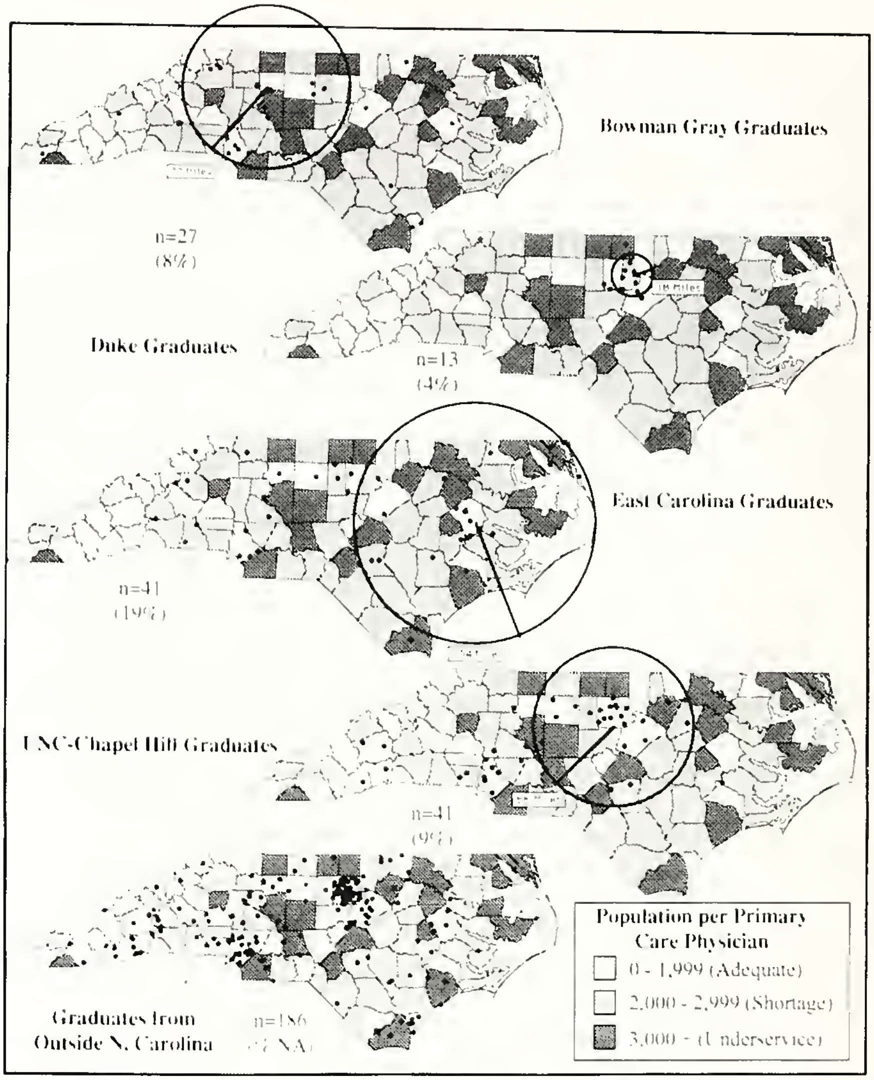

Fig 3: Level of population per primary care physician by county of practice and medical school origin. Each dot represents a physician licensed by the NC Board of Medical Examiners in 1992. Active, in-state, non-federal physicians are displayed. Dots are randomly dispersed throughout a county and do not necessarily represent actual practice location. Medical school information displays number of practicing primary care physicians who graduated from each school during 1986-1988, and percent of graduates in primary care. Radius of circle represents mean distance of practice from medical school attended. Source: NC Board of Medical Examiners, Oct. 1992, LINC Variable 5001.

1992. The figure also displays three levels of population/primary care physician ratio (based on the total number of active primary care physicians in a county)—*adequate* (<2,000 persons per physician), *shortage* (2,000-2,999 persons per physician), and *underserved* (≥3,000 persons per physician). Figure 3 shows a circle centered on each medical school whose radius represents the average distance from that school at which its graduates have established their practices. The larger the circle, the more dispersed are the graduates of that school around the state. Examination of the geographic distribution and circle sizes shows that most graduates practice in urban areas close to the school that they attended. Figure 3 shows a similar pattern of urban distribution for recent graduates from outside the state.

In 1992, two thirds of NC counties experienced conditions of shortage (43%) or underservice (23%). In 1992, doctors who graduated from NC medical schools in 1986-1988 worked in generalist practices in 41 counties; doctors who graduated from schools outside North Carolina worked in 61 counties. In total, nearly three-quarters (72%) of the counties in 1992 had attracted at least one generalist physician who had graduated from medical school between 1986 and 1988. There were 308 of these new generalists in practice in 1992, one-third in counties of shortage or underservice.

The relative contribution of generalists to areas of shortage or underservice varies according to medical school attended. ECU and UNC supplied 40% of the total number of their new generalist graduates (n=82) to counties in shortage or underservice. Bowman Gray and Duke supplied 28% of their new generalists (n=40) to shortage or underserved areas. Thirty-one percent of the 186 new generalists from schools outside North Carolina went to areas of short supply.

Discussion and Conclusions

A consensus is building that an optimal primary care population-to-physician ratio is about 1,500:1.[4,5] We believe that a 1,500:1 objective could be met in North Carolina by changing incentives to practice in the state. For example, an incentive to increase the percentage of graduates who accept in-state primary care residencies, especially in underserved areas, might also influence graduates to remain in North Carolina and to practice in counties most in need. The 1,500:1 objective would not likely be met solely by new generalists produced by North Carolina medical schools.

As Table 3 shows, there is an apparent relationship between location of residency training and retention rates for graduates of ECU and UNC. An annual average of 18 of the schools' 1986 to 1988 combined graduates who completed a residency in the state had set up practice here as of 1992. A yearly average of nine of the combined graduates who completed their residency elsewhere returned here to practice by 1992. Graduates of medical schools outside North Carolina were not more attracted to practice in the state by having completed an in-state residency (annual average = 30) than an out-of-state residency (annual average = 32). Graduates of medical schools outside the state are an important source of new primary care physicians, contributing more than 60% of the annual supply of new practitioners. The incentives that bring outside graduates to practice in North Carolina are not apparent but should be investigated.

Over 90% of graduates of North Carolina medical schools choose to practice specialty medicine, practice in federal settings, or practice outside the state. That amounts to approximately 400 graduates each year who do not practice primary care in North Carolina. It would be useful to know the proportion of North Carolina medical school graduates who eventually practice primary care outside the state compared to the volume of primary care physicians we "import" from outside. It would also be useful to know the relative importance of providing incentives for graduates of North Carolina medical schools to practice in the state and of providing incentives that attract graduates from outside the state.

It would be possible to consider other factors (for example, the effects of adding to the supply of generalists by relocating the existing workforce between counties and states, or of career changes from specialist to generalist) using our model. Including physician assistants and nurse practitioners in the definition of primary care practitioners could dramatically improve the likelihood of meeting availability targets. Projections using these factors would require careful consideration of assumptions about reimbursement, incentives, and medical education relative to the placement and retention of physicians or other primary care providers where they are most needed.

> "Any new policies affecting the primary care workforce will require that the state and its medical schools confront...placement and retention of graduates in primary care...."[19]

Any new policies affecting the primary care workforce will require that the state and its medical schools confront the issues of placement and retention of graduates in primary care in addition to the issue of supply.[19] Projections of generalist and specialist supply must consider the distribution issues relating to primary care if they are to ensure that the supply of generalists serves the population targeted by new policies. There is a real danger that merely shifting the current high proportion of specialists to a future high proportion of generalists will actually exacerbate problems in counties designated as underserved unless we develop an appropriate distribution of the workforce and appropriate makeup of the health care team. For example, without a change in incentives, two-thirds of new generalist physicians might continue to locate their practices in counties that already have a surplus of physicians. New primary care physicians might well be attracted to vacancies created by physicians retiring from attractive professional and social settings, thus offering a significant counter-incentive to reward systems designed to fill vacancies in shortage areas. It is doubtful that the most attractive placement openings will be in underserved areas; they are more likely to be distributed like the recent practice locations displayed in Figure 3. These locations tend to be urban and close to major medical centers where specialty care is available when needed, where careers are more easily cultivated, and where cultural and educational opportunities are more diverse.[20]

> "...the recruitment of new primary care physician graduates of medical schools outside the state is an important factor in workforce planning."

In light of the deleterious effect of retirements on the current supply of primary care physicians, the recruitment of new primary care physician graduates of medical schools outside the state is an important factor in workforce planning. It may be that these urban settings are the predominant attraction for current graduates of all schools, regardless of where they completed their residency training.

The historical pattern of generalist physician distribution in North Carolina reflects the pattern nationally. We need strong incentives to counteract the tendency of new physicians to cluster around major medical centers and metropolitan areas.[21,23] The placement and retention of physicians in shortage areas[23] and the recruitment of physicians to serve populations in need are aspects of health care reform that are as important as workforce supply. Without adequate attention to the problem of distribution of the primary care workforce, we may never meet the ultimate goal of improving the health status of the citizens of North Carolina. ❑

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A Graduate Survey of the Relevance of a Family Practice Residency Curriculum

Thomas A. Cable, MD, and Martha J. Delaney, MA

Since its birth more than two decades ago, the specialty of family practice has continued to define its intellectual and practice base. Surveys during the 1980s sought to characterize the practice patterns, location, and satisfaction of family practice graduates.[1-14] But it is the nature of medical practice to change, driven by sociological and technological currents, and this is especially true for family medicine. It is imperative that the specialty remain relevant to the needs of its current and future practitioners. It is, therefore, the responsibility of residency training programs to periodically assess what their graduates are doing in order to better prepare future graduates.

The Moses H. Cone Memorial Hospital Family Practice Residency in Greensboro is one of 16 programs originally accredited in the United States. In this paper we report the composite results of a survey of graduates from the first 20 years of the program. We look at the demographics of practice, the use of medical procedures, and the graduates' perceptions of the importance of various curricular elements.

Methods

In early 1992 we sent a questionnaire to the 100 individuals who had graduated from the program between 1971 and 1991, and contacted by telephone those graduates who had not returned the survey within six weeks. The questionnaire consisted of three parts: Part I asked about the geographical location of the practice, practice structure, size of community, certification (and recertification, if applicable) status of the graduate, whether the graduate had obtained any additional training, and whether he or she had hospital admitting privilege.

Part II asked respondents to rate 29 medical procedures or skills according to: 1) whether they currently performed the procedure, 2) their comfort level in performing the procedure, 3) where they had learned the procedure or skill, and 4) whether they desired to do procedures that they were not currently performing.

Part III listed 19 aspects of the residency curriculum and asked respondents, based on their current practice and perceived needs, to rate these areas; responses were then divided

Table 1. Practice demographics

Practice type		
Family practice		59 (64%)
Solo	18	
Partnership	12	
Group	29	
Emergency room or urgent care		17 (19%)
Multispecialty		4 (4%)
Other		12 (13%)
Population in practice location		
0 - 25,000		34 (37%)
25,000 - 250,000		43 (47%)
> 250,000		13 (14%)
Missing		2 (2%)
Practice region		
Northeast		5 (5%)
Southeast/Mid-Atlantic		70 (76%)
West/Southwest		5 (5%)
Central Plains/Midwest		9 (10%)
Northwest		1 (1%)
Missing		2 (2%)
Hospital and admitting privileges		
Hospital privileges:		84 (91%)
Admitting privileges:		69 (75%)

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into three categories: *essential*, *important*, or *not important*. We report the data by frequency of response and make some comparisons by graduation year, practice type, and practice location.

Results

Demographics. Ninety-two of the 100 doctors (92%) returned questionnaires. There were very few differences by graduation year, practice type, or practice location. Therefore, data are given for the entire group except when we found an obvious difference.

Ninety-one (99%) of the respondents had obtained board certification, and 51 of the 55 (93%) who were eligible for recertification had done so. Eleven graduates (12%) had obtained fellowship or other forms of additional training.

Table 1, previous page, shows practice information for the graduates at the time of the survey. Most (76%) live in the Southeast or Mid-Atlantic regions, consistent with the location of the residency program. Thirty-four (37%) of the graduates practice in towns with populations less than 25,000. Fifty-nine (64%) are in traditional family practice settings; 18 in solo, 12 in partnership, and 29 in group practice. Of the remaining 35%, 17 practice in emergency room or urgent care, four in multispecialty, and 12 in other settings. Seventy-three percent of those who graduated before 1980 worked in traditional family practices, but only 50% of the 1985 to 1991 graduates did. Nearly all (91%) had hospital privileges and 69 (75%) routinely admitted patients.

Table 2. Procedural skills

Procedure	**Do**	**Want to do**	**Total**
Minor office surgery/lacerations	95%	5%	100%
ECG interpretation	92%	8%	100%
Lumbar puncture	89%	1%	90%
X-ray interpretation	80%	2%	82%
Punch biopsy, skin	71%	4%	75%
Casting/splinting	67%	7%	74%
Flexible sigmoidoscopy	50%	19%	72%
Cryosurgery, skin	45%	15%	60%
Endometrial sampling	33%	27%	60%
Neonatal bladder aspiration	51%	3%	54%
Neonatal resuscitation	49%	1%	50%
Central line placement	33%	11%	44%
Exercise treadmill test*	8%	35%	42%
Colposcopy*	3%	37%	40%
Circumcision	33%	4%	37%
Bone marrow aspiration	28%	8%	36%
Family therapy	30%	5%	36%
Hemorrhoidal banding*	4%	30%	35%
Chest tube placement	20%	13%	33%
Cryosurgery, cervix*	5%	22%	27%
Cervical biopsy*	13%	24%	27%
Flexible nasopharyngoscopy*	4%	20%	24%
Allergy testing, RAST (radioallergosorbent test)	11%	11%	22%
Low-risk obstetrics	9%	10%	19%
Allergy testing, skin	3%	15%	19%
Surgery, first assistant	13%	4%	17%
Swan-Ganz catheter placement	5%	11%	16%
Orthotics	1%	12%	13%
High-risk obstetrics	3%	3%	7%

*Procedures that few graduates perform, but which a large percentage would like to perform.

Procedures and skills. Table 2, at right, lists the 29 procedures in descending order in which graduates said they "currently do" or "would like to do" each. Eleven procedures were placed in one of those two categories by at least 50% of the graduates; 80% of the graduates said that they had learned these 11 procedures during their residency.

Six of the remaining procedures (treadmill exercise testing, colposcopy, hemorrhoidal banding, cryosurgery of the cervix, cervical biopsy, and flexible nasopharyngoscopy) were being done by 13% or fewer of the graduates. These six procedures were considered of interest, however, because an additional 20% to 37% of graduates said they would like to perform them. Barely half (51%) of the graduates had learned these six procedures during residency.

Of graduates who actually performed the 17 procedures listed above, an average of 79% felt "very comfortable" or "comfortable" about their abilities.

Only 60.5% of graduates said they felt comfortable performing the 12 procedures they least frequently rated as "currently do" or "would like to do." Despite this, these procedures had been learned during residency by the same percentage of graduates (80%) as the more highly rated procedures.

Curricular areas. Table 3, next page, lists 19 curricular areas in order of graduates' perceived importance. Nine were considered "essential" by at least 50% of the graduates. In contrast, only three curricular areas (biofeedback, research skills, and hypnosis) were considered "not important" by at least half of the graduates. Table 4, next page, shows areas rated as "unimportant" by at least 20% of graduates. Those graduating between 1980 and 1984 gave the highest rankings to geriatric assessment, adolescent medicine, practice management, and advanced cardiac life support (ACLS). Those graduating between 1985 and 1991 ranked health risk appraisal, stress management, ethics, smoking cessation, and nutrition counseling highest.

Discussion

This survey focused primarily on procedural and curricular issues, less on practice specifics. We hoped that a short survey with questions limited to patient load, patient type, coverage arrangements, practice economics, and practice satisfaction would produce a high response rate. The success of this approach is seen in our 92% response rate. We organize our discussion under the same headings used for our results.

Demographics. Our graduates' high rate of board certification, recertification, and attaining of hospital admission privileges is consistent with survey data from the American Academy of Family Practice (AAFP).[14] The tendency of graduates to practice in the general geographical vicinity of their residency program is consistent with national trends.[3,4,7-11] The percentage of our graduates who practice in rural areas was smaller than that in the AAFP survey (38% vs. 46%), a percentage that is independent of graduation year, reflecting a stable migration of graduates from residency training to rural locations. Sixty-five percent of graduates work in traditional family practices, with almost half of them in groups of three or more. Partnership pattern of practice has remained stable, yet there has been a shift from solo to group practice .

Table 3. Percentage of graduates ranking curricular areas as essential or important*

Curricular area	Essential	Important
Geriatric assessment	78%	17%
Advanced cardiac life support	76%	12%
Practice management	75%	18%
Health risk appraisal	73%	20%
Adolescent medicine	68%	26%
Ethics	65%	25%
Smoking cessation	57%	33%
Nutrition counseling	51%	38%
Stress management	50%	41%
Critical reading skills	46%	40%
Sports medicine	42%	50%
Basic computer literacy	38%	45%
Advanced trauma life support (ATLS)	33%	28%
Occupational medicine	27%	59%
School health	24%	52%
Epidemiology	9%	50%
Biofeedback	4%	37%
Research skills	4%	27%
Hypnosis	1%	11%

*Percentages do not add up to 100 because of missing data

The preponderance of graduates in group rather than solo practice and the recent shift away from family practice may reflect lower salaries in the recently less-favored settings. For example, more than half of those in non-family practice settings work in emergency rooms or urgent care clinics, both of which provide incomes 1.5-2.0 times higher than traditional family practices. It is difficult for graduates, regardless of practice philosophy and the flexibility and breadth of their training, to ignore these economic realities.

Procedures and skills. As a group, our graduates perform a wide variety of procedures. However, 12 of the procedures learned by most of our graduates during residency are performed by relatively few. Some procedures are just not done often (central intravenous line placement, chest tube placement, Swan-Ganz catheter placement, assisting in surgery, and bone marrow aspiration); others are only done by doctors with specialized interests (high- and low-risk obstetrics, circumcision, orthotics, allergy testing, and family psychiatric therapy).

Our data prompted us to ask how much time and effort should be devoted to teaching infrequently used procedures to residents. By putting less emphasis on the more specialized and less performed procedures, we could save considerable curricular time—time that could be devoted to other procedures of interest to residents and graduates. We have already begun to emphasize exercise treadmill testing, colposcopy, and cervical biopsy; we are evaluating the place of cervical cryotherapy and flexible nasopharyngoscopy.

If so-called "mainstream" curricular procedures are performed by only a small number of graduates, we ought to review the residency to correct factors that might be contributing to the decline in performance of these procedures. We need to discuss the role of factors outside the residency (such as liability issues in obstetrical practice) or that of controversy surrounding some procedures (such as circumcision). Recently we have noted a resurgence of interest in obstetrics among our residents and student applicants that contrasts sharply with the low interest of our graduates. In response to this we have developed an obstetrical track within the curriculum and are currently in the first year of a formal obstetrical fellowship. We also offer supervised obstetrical "moonlighting" opportunities within our hospital.

Table 4. Percentage of graduates ranking curricular areas as unimportant

Curricular area	Not important
Hypnosis	83%
Research skills	63%
Biofeedback	52%
Epidemiology	36%
ATLS	24%
School health	21%

Curricular areas. Feedback about our curriculum reflects the change in emphasis of our program toward preventive medicine in the past eight years. Recent graduates rate health promotion/disease prevention topics more highly than earlier graduates. Not surprisingly, graduates practicing in traditional family practice settings rate prevention topics more highly than those in nontraditional settings.

The fact that most of our graduates work in private practices may account for the areas that were considered not important. For example, our graduates saw little need for research skills, but did see the value of critical reading skills. In our program, residents are not required to do research but the opportunity is available as an elective or through collaboration with faculty. Epidemiology is considered important and is learned primarily through review of journal articles in the monthly journal club. Several areas ranked as not important by graduates are not emphasized at our program (hypnosis, biofeedback, advanced trauma life support, and school health), although residents with an interest in these areas can elect to spend time learning them.

Finally, there is a close correlation between areas of faculty interest (such as preventive and sports medicine) and curricular topics. Our faculty interpret this to mean that we have affected our graduates' perceptions of what is important as well as providing training of relevance as reflected in the graduates' daily practices.

Conclusion

Based on this survey, our faculty chose to deemphasize highly specialized and infrequently performed procedures. We were gratified to see our curricular emphasis on prevention supported by graduates. Of course, surveys are not perfect curricular guides as demonstrated by the disparity between our graduates' low interest in obstetrics and the increased interest of our current resident and medical students. Since medical practice is always evolving, faculty must anticipate trends in order to meet the needs of future graduates. Graduate surveys represent one way for programs to maintain relevance. ❑

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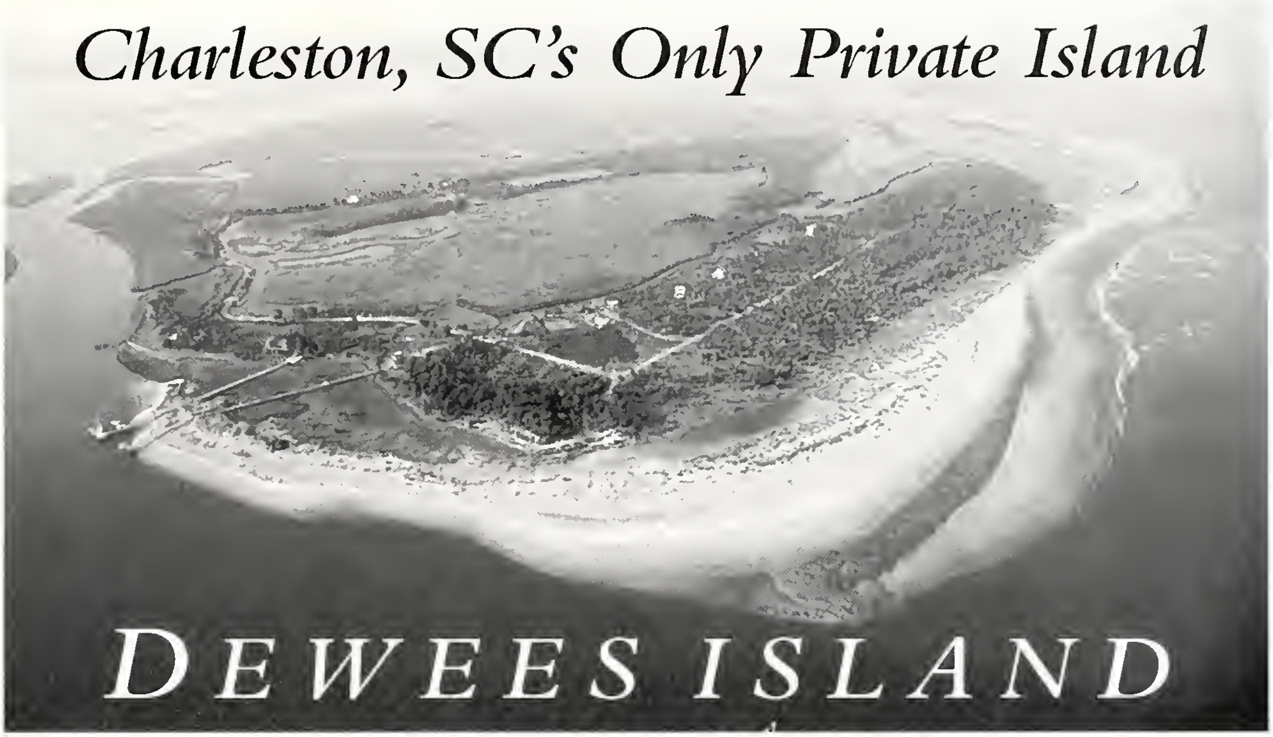

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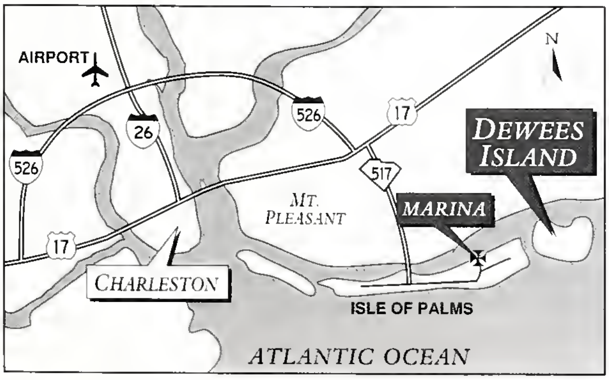

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Could Changes in the Health Care System Force North Carolina to Establish a Health Services Commission?

Thomas P. Weil, PhD

Managed care, capitated payment, and regional networks are considered by many to be effective means of improving the delivery of health services while reducing costs. They will serve for the foreseeable future as centerpieces of programs intended to improve the organization, financing, and delivery of our nation's health services. Nevertheless, given the American public's distaste for governmental regulation and taxes, and given an increasingly conservative Congress, I doubt that legislation containing anything more than modest health insurance reform will be sent to President Clinton before the 1996 election.

Unfortunately, despite the present fervor, there is little evidence that either health alliances or health maintenance organizations (HMOs) or health care networks or capitated payment plans can deliver significant cost savings or other positive fiscal benefits.[1] In fact, managed care plans and networks formed to date have not been able to keep the growth in our nation's health expenditures in line with the consumer price index. There is only minimal quantitative evidence that HMOs or regional alliances can provide a broader range of covered services at a lower cost per subscriber than present-day, loosely affiliated systems and indemnity contracts.

In this essay I discuss the implications for North Carolina of major health networks being established in the western and in eastern parts of the state; two networks in each of the Charlotte and Greensboro/Winston-Salem regions; two or even three in the Research Triangle; and one or two elsewhere in the state.

It is possible that roughly 80% of North Carolina's population could eventually be served by doctors and hospitals in nine to 11 major networks, although most North Carolina physicians think that such organizational consolidation is a remote possibility. They argue that hospital utilization rates and expenses per adjusted hospital admission (adjusted for differences in the total number of ambulatory care visits) are generally lower in North Carolina than in South Carolina and Tennessee (Table 1, next page). Inpatient use rates are greater in North Carolina but hospital costs/adjusted admission are lower than national averages. They also point out that HMO market penetration and the number of persons enrolled in capitated plans in North Carolina are far below national averages (Table 2, next page).

But changes in the financing of indigent care in North Carolina could change the existing situation quickly. Should North Carolina obtain a Medicaid HMO waiver from the Department of Health and Human Services similar to the Palmetto Health Initiative (South Carolina) and TennCare (Tennessee) plans, more than 800,000 indigent North Carolina residents would be added immediately to those already covered by capitated payment. In that case, roughly 20% of the population of North Carolina would be enrolled in an HMO plan, just about the national average.

The ability of North Carolina physicians and hospitals to maintain their current organizational *status quo* is already waning. The Charlotte-Mecklenberg Hospital Authority now owns six hospitals containing 1,540 beds. Since this network controls an estimated 70% share of the health care market in Mecklenberg County, the 843-bed Carolinas Medical Center is assured of a place among the state's major tertiary care hubs. The Authority's competitor, the Presbyterian Health Care System, operates three hospitals, and it recently joined Blue Cross and Blue Shield of North Carolina and the 100-physician Nalle

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Table 1. Selected operating and fiscal data for North Carolina, South Carolina, Tennessee, and United States hospitals, 1993

Characteristic	NC	SC	TN	US
Admissions/1,000	122.7	116.7	156.3	119.3
Surgical operations/1,000	89.2	85.5	112.5	88.4
Emergency department visits/1,000	421.9	396.1	532.3	359.2
Outpatient visits/1,000	773.2	744.1	1,019.5	1,069.1
Full-time employees/occupied bed	6.1	6.0	6.2	6.2
Paid hours/discharge	358.6	339.7	337.8	347.8
Expense/adjusted admission	$5,571	$5,954	$5,798	$6,121

Sources: American Hospital Association. AHA Hospital Statistics, 1994-95. Chicago: AHA, 1994; and, US Bureau of the Census, Statistical Abstract of the United States (114th edition). Washington, DC: US Government Printing Office, 1994.

Table 2. Percent market penetration, number enrolled, and number of HMO plans, NC and US, 1991-1994

Location	1991	1992	1993	1994
NC market share	5.0%	6.0%	7.6%	8.3%
Enrollment (in thousands)	337.9	410.9	527.9	590.9
Number of HMOs	11	10	9	9
US market share	15.9%	17.5%	19.2%	20.3%
Enrollment (in thousands)	39,869.2	43,876.9	49,094.8	52,369.4
Number of HMOs	581	562	541	546

Source: Marion Merrell Dow. Managed Care Digest/HMO Edition, 1993 and 1994. Kansas City, MO: Marion Merrell Dow, 1993 and 1994.

Clinic to form a new HMO to serve the Charlotte area. Similar amalgamation of health providers and insurers can be expected elsewhere.

Competition in the Research Triangle region now extends beyond the hardwood courts into physicians' offices, major medical centers, and corporate boardrooms. Nearly a dozen HMOs are attempting to gain increased enrollment there; Duke University Medical Center is working out the details of a risk-sharing partnership with Sanus/New York Life; the University of North Carolina Hospitals are establishing their own plan and are giving the medical school faculty fiscal incentives to be more productive. Meanwhile, Wake Medical Center is providing capital for physician practices to expand as Rex Hospital is aggressively acquiring groups of doctors. If this activity, begun in 1995, continues, it is conceivable that three-quarters of the Triangle residents will be covered by five or less insurers by the turn of the century.

Managed Care is No Panacea

The use of managed care to control health expenditures and to reduce the cost of federal entitlements provides only a temporary solution. Compared with traditional (fee-for-service) indemnity insurance, HMOs and other managed care plans achieve modest results: HMO patients have somewhat lower inpatient admission rates and slightly shorter average lengths of hospital stay,[2] but they have the same or a greater number of physician office visits.[3] Because of direct fiscal incentives inherent in capitated payment, physicians operating under that rubric order fewer expensive procedures and examinations.[4] Patients are less satisfied with HMO services, but this is counterbalanced by the perception that managed care is less expensive than fee-for-service care.[5]

Managed care plans generally achieve a one-time overall cost reduction of 7% to 10% by micro-managing services.[6] The saving is sizable, but the sum is roughly equal to only one year's inflationary growth in the nation's health expenditures; therefore, such restraint in the rising cost of health care is inadequate. Indeed, most projections of the costs of entitlement programs (Medicare, Medicaid, and Social Security) predict that they will consume *all* federal revenues by the year 2012 unless we raise taxes, reduce benefits, or both.[7]

As the number of people enrolled in managed care plans increases, physicians will find increasing numbers of patients either uninsured or underinsured because: 1) the cost of purchasing health care coverage will rise at a rate twice that of average salary increases, and 2) governmental subsidies provided to the working poor and their dependents will be inadequate, if they exist at all. When Congress further reduces Medicare and Medicaid reimbursement to providers, small employers will feel most the adverse effects of cost shifting.

HMOs and regional networks will experience increasing difficulty in delivering accessible, quality health services to those living in our urban and poor rural areas. These locations are where most of the presently underserved reside and where the shortage of quality providers is most evident.[8] To fill the void, additional for-profit managed care plans will be formed. These HMOs will deliver limited care to those who live in urban areas and have Medicaid benefits.

> "...North Carolina may have as many as 3,600 excess physicians by the year 2000."[9]

Managed care plans and regional networks claim that to assure quality care and to lower costs they are forced to establish panels of approved (participating) physicians and hospitals. I worry that too many HMOs and alliances will hire low-quality, low-cost providers whose professional loyalties will be dominated by the fiscal imperatives of their employers, whose priorities will be to assure their own revenue stream rather than protecting their patients' best interests. Capitated payment has inherent fiscal incentives that encourage physicians to restrain the number of services they order for patients (such as referrals to specialists and subspecialists, expensive procedures and examinations, and hospital admissions and length of stay).

HMOs provide one physician per 800 subscribers compared to the present ratio of one physician per 415 persons in the United States. These numbers suggest that North Carolina may have as many as 3,600 excess physicians by the year 2000.[9] Furthermore, if the number of patient days in hospital per capita in North Carolina are reduced to current national average HMO rates, occupancy will decrease to 35% of available hospital beds in the state. The average daily census of patients in North Carolina hospitals will plummet from 15,772 (in 1993) to 7,900 patients. The resulting "excess" capacity in our health system will mean that regional networks can squeeze out the weakest providers.

As HMOs reduce costs by restraining the use of (and the reimbursement for) individual services, North Carolina will see a slowdown in the acquisition of high-technology equipment, greater centralization of complex medical services, and longer waits (queuing) for patients who seek such sophisticated services. Fiscal pressures will force providers to regionalize tertiary care so that eventually sophisticated services will not be available "on demand" to patients in community hospitals. Some medical specialists and subspecialists will reluctantly be forced to seek privileges in teaching centers, or face a significant reduction in personal income.

Networks and Regional Monopolies

As more and more hospitals and physicians are left stranded without patients; as managed care plans, capitated payment, and the formation of powerful networks expand, almost all doctors and acute care facilities in the state will be forced to associate with a geographically linked, vertically and horizontally diversified health network. In theory, regions that have excess capacity could reduce expenditures by closing hospitals or by forcing physicians to relocate. Doctors and hospitals faced with financial disaster will consider merger or acquisition.

"Voluntary" alliances and mergers now being forged foreshadow powerful, geographically linked regional health networks under one corporate umbrella such as that already being formed in Charlotte. Stringent fiscal restraints will require providers to deliver less costly and more integrated and coordinated services. By the year 2000, almost every hospital in the US could be affiliated with a regional network.[10] The strongest alliances will be those that are geographically linked, those that are compatible with existing physician referral patterns, and those that are able to develop a common culture and goals among their trustees, doctors, and health services managers.

As enrollment in HMOs grows and as alliances gain additional market share, a single network or, in large metropolitan areas, several alliances may dominate a region as an oligopoly. Classical economics teaches that, in a highly competitive marketplace, a goal of oligopolists is monopoly. The public, on the other hand, may become incensed about immense regional health networks that become insensitive about access to services, social equity, the comprehensiveness of and quality of care, and costs.

The Role of Antitrust Laws

Federal antitrust laws reflect a public policy of enhanced free market competition; they protect consumers, restrain private economic power, and produce the best allocation of quality goods and services at the lowest price.[11] The threat of antitrust action actually may not be a serious barrier to health care networks. According to an August 1994, General Accounting Office study, less than 4% of 397 acute hospital mergers occurring from 1981 through 1993 were challenged.[12] Neither the Department of Justice nor the Federal Trade Commission has seriously questioned a hospital joint venture. If this trend continues, a few networks ultimately will dominate almost all of North Carolina.

> "...the formation of oligopolies could turn us toward an old concept—a public utility model—to regulate the health industry in North Carolina."

An early, if rarely implemented, attempt to protect the public interest from the "abuses of Big Business," proposed that state health services commissions would allocate regional capital resources. This concept was put forth in 1959 by the late Ray Brown, the dean of American hospital administrators.[13] In

1970, the American Hospital Association's "Ameriplan" recommended the formation of a National Health Commission to oversee the organization and financing of the US health system. Each state was to establish a health services commission to control the range of services offered and to set reimbursement rates for providers.[14] This public utility concept was the model for the 1971 Maryland Health Services Cost Review Commission.[15]

Monopolies May Be Regulated Like Public Utilities

Most physicians, hospitals, insurers, and others in the health industry expect that current market-oriented strategies will generate a more competitive environment. Actually, by the turn of the century, the formation of oligopolies could turn us toward an old concept—a public utility model—to regulate the health industry in North Carolina. Such a statutory authority would control entry, market penetration, the range of services offered, price to be charged, reimbursement rates, profit margin, and exit. A key concern for providers is whether a North Carolina health services commission could integrate and coordinate competition while using the fewest regulatory provisions, so that the state's residents would end up with a more effective and efficient health delivery system.

An even more fundamental issue surrounding the potential use of the public utility concept is finding an appropriate balance among the rights of patients and providers, and governmental control. What is most disconcerting to supporters of the separation of powers outlined in our federal constitution is that state public utility commissions merge the powers of the legislative, judicial, and executive branches.[16] For this reason, we can expect a flurry of lawsuits as the "arbitrary and capricious" decisions of a North Carolina health services commission get tested in the courts by public citizen groups, health providers, and the insurance companies.

If a North Carolina health services commission were to be established, the delays inherent in its functioning could adversely affect the public. Delay could hamper the development of new and innovative health services and the implementation of operating efficiencies by providers. Delay could prevent consumers from receiving their share of the benefits flowing from advances in medical sciences and organizational efficiencies. Delay could be costly in terms of human energies expended by the state's health providers to get approval for changes that common sense said must be accomplished anyway. These worries are clearly illustrated by the cost and overall failure of our national experiment with "certificate of need legislation" to control capital expenditures.[17]

We should also be concerned that a state health services commission would make that regulatory body rather than the provider responsible for the programmatic and financial success or failure of an organization. Because regulations can interfere with management's decisions, the commission could discourage entrepreneurial initiatives and diminish the sense of personal responsibility. The statutory authority, by providing a privilege of monopoly to specific organizations, would leave other providers at a significant disadvantage.

And even if all of these defects could be remedied, and even if regulation could be made effective, I believe that the performance of a North Carolina health services commission would be lacking because the pitfalls of regulation lie largely in the nature of the process itself.

Where Are We Heading?

America is embracing the HMO concept and forming regional networks, thereby creating powerful alliances with huge fiscal resources. The result will be monopolies. To protect the public's interest, these alliances—an evolving amalgam of providers and insurers—eventually will require regulation by a state health services commission. An aggressive, competitive environment could evolve into a protective bureaucracy that bolsters the public's interest by forming nationwide quasi-private, quasi-public bodies.

Certainly, the concept of a state health services commission is alien to the health leaders of North Carolina. They visualize health reform as being implemented almost solely by competitive forces. This state now has a low HMO market penetration; relatively low hospital use rates and costs; has not submitted to federal officials a Medicaid waiver to cover all its

Commentary

Dr. Weil argues that, based on *current* HMO utilization rates, the need for hospital beds and physicians will decline as HMO market share increases. I argue that *today's* HMO patients are mostly young, healthy, working-age persons with inherently low rates of physician and hospital usage. I would expect that if HMOs begin providing care for groups of persons with inherently *high* health care usage (e.g., the elderly, the socially disadvantaged), their utilization rates will undergo an increase. Providing care for the old and the poor is more costly than providing care for young, working, healthy people. Therefore, current HMO costs (and savings) should not be generalized to the entire US population.

Secondly, Dr. Weil tends to dismiss the possibility of monopoly prevention by court antitrust decisions because in past years courts have not often ruled against health care mergers. I argue that this could (and probably will) change; as consolidation in the health care field progresses, courts will view further mergers with a much more critical eye.

Lastly, I think that it is unlikely that we will see general support for the idea of yet another government regulatory agency. The positive response to the anti-government "Harry and Louise" ad campaign, as well as the results of the 1994 elections, seem to indicate an inclination toward less, rather than more government intrusion into our personal lives.

—Terrence Wolanski, MD, internist, Jacksonville

indigent patients with a capitated payment plan; and has only two metropolitan areas (Charlotte and the Research Triangle) in which powerful health networks are being formed. These factors suggest that North Carolina will trail most other states in establishing a health services commission. ❑

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To Soar "with Wings, as Eagles"

The Day I Tried Hang Gliding

Claude A. Frazier, MD

As age advances, most of us find it harder to come up with new ways to celebrate our birthdays. So when my wife, Kay, asked what I wanted for the 74th anniversary of my birth, I thought for a while and told her, "I think I would like to go hang gliding at Kitty Hawk." She tried to discourage me, but she might as well have been talking to a stone. When I make up my mind to do something, I do it—or at least I *try* to do it. Some people tell me that I am the most persistent competitor they have ever known. I never give up, and I have seldom failed in following my whims, for I have discovered that the human body and mind can accomplish far more than most of us want to believe. In this instance I had a yearning to feel the wind in my hair and to feel in my hands the means to fly—to soar and bank—without motorized power. I felt power within me, enough to propel a hang glider.

I am an allergist from Asheville. I live about 400 miles from Kitty Hawk, where on December 17, 1903, Orville and Wilbur Wright made the first successful powered flight, opening up the skies and some of the universe to humans.

In the Footsteps of Orville and Wilbur

I chose Jockey's Ridge near Kitty Hawk as the place to make my first flight because Kitty Hawk Kites, the largest hang gliding school in the world, is located there. It was founded and is still owned by a hang glider named John Harris. (I also figured those sand dunes would be a lot softer to "land" on than the dirt, stones, and trees at other hang gliding schools.)

My interest in hang gliding was kindled 15 years earlier in the mountainous western part of the state at Grandfather Mountain, one of North Carolina's premier tourist attractions. As Kay and I climbed to the top of the mountain to walk across a mile-high swinging bridge, I saw a hang glider run down a short path and soar into the air. I watched as he rode the wind, circling now and again, dipping lower and lower until he landed in a meadow almost out of sight from our vantage on the mountain. I became fascinated with hang gliding that day and promised myself that I would do it when the chance came.

In the intervening years, severe medical problems made it hard for me to walk, much less run as I thought you had to do to fly a hang glider. A ruptured Achilles tendon and then osteoarthritis left my knees so weak that I have to wear heavy braces on my legs. I find it difficult to walk up and down stairs.

"I had a yearning to feel the wind in my hair."

Dr. Frazier is an allergist at Doctors Park, Building 4, Asheville 28801. Illustrations by Ernest Craige, MD, of Chapel Hill.

My doctor, like Kay, tried to discourage me from my attempt, but I remained determined. I telephoned Kitty Hawk Kites and asked to register for the hang gliding course. They asked about my medical problems, and I told them the truth. I also told them I had been playing tennis—very slowly, to be sure, but tennis anyway. This apparently did not persuade them; I was turned down, but I did not back away from my goal. I kept thinking, "A man's got to do what he's got to do." I telephoned Kitty Hawk Kites again, and this time I was accepted.

Kitty Hawk Kites has been in business since 1974. Its slogan is "Letting your dreams fly." Beginner's lessons cost $69, and that seemed little enough for a man who was going to realize a dream.

Into the Air

We arrived for the flight on the morning of my birthday. First, we watched a 30-minute video about the sport, and then had to climb to the top of the tall sand dune nearby. Walking in sand is worse than climbing stairs, and my instructor, Bo, had to help me to the top of the dune.

As I turned to look off the dune in the direction I would be flying, I felt no fear. On the previous two nights, I had slept poorly, with nightmares about crashing. But at the top of the dune, I was calm and felt no more fear than I would about driving to the grocery store. It was amazing, I thought, that I should be so calm. The trust I felt in my instructor was responsible. I had faith in him.

"Suddenly I realized all the bystanders were applauding me."

We had to wait until the wind freshened. At first there wasn't enough wind to boost me, and because I couldn't run I would have to let the wind lift me into the air. In a few minutes the wind strengthened and I put on the flight jacket, which hooked me to the glider. I had been told that the harness should be checked, and that I should ask questions about whatever I didn't already know, and that if I wanted to continue to fly, I should read a manual called *For Beginning Hang Gliding Pilots*, available through the US Hang Gliders Association. "Don't trust anyone about your harness," I was told. "Always check it yourself," the way pilots of small aircraft always check out their airplanes before leaving the ground. The glider is heavy but with a bit of practice you learn to balance it on top of your shoulders. Hand grips to help do this are built in.

My time arrived. I grabbed the rod in my hand, took a few steps, and the wind lifted me. I suddenly realized I was flying, soaring out over the dunes and heading for the landing site. Still I had no trepidation, no fear, even though I had been told that the first few seconds, even after a perfect launch, were critical. I would be only a few feet off the ground, flying close to stall speed, and vulnerable to turbulence-induced turn and loss of lift.

It is important when hang gliding to relax and maintain a light grip on the bar, a grip like that of holding a Coca-Cola bottle with thumb and forefinger around the neck. Tightening your hands too much may cause the wing to rotate downward, making balance difficult. Pushing on the control bar lets you raise the nose; lowering the bar turns the nose down toward the ground.

Getting off the ground usually is relatively simple: get the glider balanced, then walk, jog, and finally run until the glider lifts you off the ground. A slow start is best because it lets you concentrate on controlling the glider's angle, keeping the wings level. Accelerating too quickly may lead to a loss of control so that the glider immediately begins to turn.

I had listened well to the instructions: wedge your shoulders between the down tubes of the control frame, fully extend your arms and lightly grip the tubes. "Let the glider fly by itself," they said to me, and indeed it did.

Sometimes an instructor flies with you, and then it is called "tandem gliding." With the instructor's hand to steady the glider you can soar to great heights and he can correct you in every mistake you make. The beginner can observe how the instructor handles the locks and climbs to a safe altitude. The instructor will introduce the beginner to the control movements one by one in a leisurely manner. Of course, it doesn't always go smoothly. My instructor, Bo, once flew off a high mountain with a beginner who became panic-stricken and would not let go of the bar. They flew into the top of a tree, which killed the beginner and put Bo in the hospital for a year.

As Bo had told me to, I relaxed and held the crossbar in a neutral position. I looked down upon the earth and at that moment a tremendous sense of accomplishment came over me; I had done what should have been the impossible for one as crippled as I. And the feeling as I flew on! This must be what birds in flight feel: weightless; silence except for the wind rushing by my ears; extreme exhilaration!

Back to Earth

When I approached the landing spot, I pushed the bar forward as I had been taught to do, stalled the glider, and settled gently with my feet on solid ground. There was no pain in my knees, my feet and legs did not give way. As I stood there, I realized that bystanders were applauding me; so I bowed and smiled and went back up for a second flight, which went just as well as the first.

All my friends and family have been surprised to learn that I had "got the hang" of hang gliding. My brother, an orthopedist from California, said that I was to let him know the next time I went hang gliding so he could take out a life insurance policy on me. The emeritus chief of orthopaedics at Duke Hospital, Dr. Leonard Goldner, said he was surprised and amazed that I had done it with my weak knees and legs. My patients can hardly believe that I have gone hang gliding. They think I am talking about someone else. But I have proof of my prowess in my office—a certificate issued by Kitty Hawk Kites attesting to the fact that I have flown a hang glider.

My ego was boosted considerably that birthday, not only because I actually flew, but also because I had the pleasure of making my flights in the presence of 82-year-old Francis Rogallo, a retired NASA employee who founded the sport of hang gliding. Twenty years earlier, he had invented the flex-wing hang glider, and developed the skills and techniques necessary to fly in this way.

When Kay and I headed home, I was mystified that she hadn't tried hang gliding herself. Usually, she's game for anything.

"I can't understand why you wouldn't fly."

"I can't understand why you would."

My only answer was, "I had to do it." ☐

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The Bed Wetting Blues

STAYING DRY DURING THE NIGHT

David Spencer, MD

Many of us have had the experience of wetting our beds at night or have known bed wetters. We remember the smell of urine on our skin or on our friends' despite bathing and applying cologne or perfume. We may remember the snickers or jokes about our bed wetting or maybe making fun of those who did.

Bed wetting is defined as at least two wet nights per month by five- and six-year-olds and at least one wet night per month for older children. Most authorities suggest that after age five, bed wetting decreases by 15% per year. About 2% of all 12- to 14-year-olds and between 1%-2% of adults wet their beds. Treatment should be delayed until school age when it begins to interfere with self-esteem.

Enuresis or bed wetting can also occur in the daytime, but after four years of age this is unusual. If daytime wetting occurs, then have the child evaluated for urinary tract infection and other more serious causes including neurological, psychological, metabolic, or kidney or bladder problems.

There are several physical reasons why people wet the bed. Bed wetting can be caused by slow development of the central nervous system causing the bladder to empty involuntarily. Bed wetters often have smaller bladder urine capacity compared to non-bed wetters of the same age and sex. Some people wet the bed because they lack sufficient levels of a

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David Spencer, MD is trained in both pediatrics and cosmetic dermatology. He is in private practice in Winston-Salem.

pituitary hormone that decreases urinary output during the night in most people.

Family History Increases Likelihood of Bed Wetting

Bed wetting is twice as common in boys than girls and occurs more frequently if one or both parents were bed wetters. If both parents were bed wetters, there is an 80% chance of bed wetting among their children. If only one parent was a bed wetter, then a 40% chance exists for enuresis in their children. If no parent had a bed wetting problem, then there is only a 15% chance that their offspring will wet the bed.

Doctors used to think that deep sleeping contributed to nighttime bed wetting but two very good studies have contradicted this.

More than 50 years ago, bed wetting was linked to food allergies. Today, most authorities feel that food allergies account for only a small number of cases of bed wetting. It is interesting to note that researchers have found no common psychological problems among people who wet the bed, though most suffer from considerably low self-esteem.

Bed Wetting Treatment

Treatment for bed wetting involves a combination of behavior modification techniques and drug therapy. By the time a child is brought to the doctor's office, most parents have already tried several things to solve the problem. Good initial approaches include limiting fluids to small amounts after supper, asking the child to void just before bed time and "bribes" or "rewards" for not bed wetting.

If your child has a bed wetting problem, first try to determine how serious the problem is by keeping a diary of bed wetting incidents. A physician will use this information and his or her judgment about how much both parents and the child want to change this behavior in developing a therapy. The physician may suggest you start a food diary and a bed wetting chart to make sure that food allergies are not causing your child to wet the bed.

Once this step is completed, your family will be encouraged to use a system of positive reinforcement, possibly rewarding children age five to eight with gold stars on the calendar for dry nights. It's a good idea to launder and change bed linens as soon as the wetting is discovered, whether it occurs at night or the following morning.

Bed wetting can strain a child's relationship with family and friends. Left untreated in the school-age years, bed wetting can seriously lower self-esteem and emotional well-being.

If your child is still having wet nights after several months of using positive reinforcement, then your pediatrician or family physician may suggest a urinary alarm system. The system uses a battery-operated device to alert your child as soon as a special pad comes in contact with urine. The child usually stops voiding immediately, switches off the alarm, and finishes emptying his or her bladder in the bathroom.

Alarm systems are successful 70% of the time after three to four months of use. Children and adolescents age five to 15 relapse 10%-15% of the time after using this method. If behavioral modification and alarm systems still do not work, ten your doctor may recommend drug therapy.

Two main types of drugs that are used are antidepressants and antidiuretic hormone analogs. Antidepressants can reduce voiding and increase the bladder's ability to hold urine. Their overall success rate when taken before bedtime is about 40%, but after the drug is stopped, children start wetting the bed again 70%-80% of the time.

After one month without bed wetting, these drugs should be tapered over a two- to four-week-period. Side effects are rare, but can include bone marrow suppression. It is important to know that the drugs can be deadly if accidentally ingested by younger siblings in large quantities.

The antidiuretic hormone-like drug called Desmopressin was popular in Europe in the 1970s and 1980s and is gaining popularity in the United States. It helps bed wetters control their bladder by allowing the bed wetter to produce less urine at night and concentrate it. Desmopressin comes in nasal spray and oral tablet form and is given before bedtime for three to six months.

Children who take Desmopressin resume wetting the bed more frequently than those treated using the alarm system. The most effective help comes when drug therapy and alarms are used together. Children treated in this way rarely go back to wetting the bed. Side effects of this medicine are rare but can include nose bleeds and low sodium in the blood.

Bed wetting can strain a child's relationship with family and friends. Left untreated in the school-age years, bed wetting can seriously lower self-esteem and emotional well-being. Children who wet their beds are often left out of overnight trips, summer camps, or sleepovers at friends' houses. Embarrassment is usually the reason parents finally take children to the doctor to find effective help.

DRUG INTERVENTIONS

Anitdepressants
- ***Imipramine***
- ***Desiprane***
- ***Amitriptyline***

Antidiuretic Hormone Analogue
- ***Desmopressin***

NON DRUG INTERVENTIONS

Limit Fluid Intake Before Bedtime
Void Before Bedtime
Use Behavior Modification
- ***Reward System***
- ***Alarm System***

Pain

by Betsy McCorkle Boyd

It is much more important to know what sort of patient
has a disease than what sort of disease a patient has.
—Sir William Osler

Sarah breaks down, must find the cure
visits the Health Care Center in a city
Down East, a southern region
where modern medicine and politics are
not trusted. So she still wears the Root
Doctor's amulet of licorice, goldenseal,
slippery elm. She's got fierce pain in her belly.

Ma belly's full a snakes a'eatin at ma innards.
She tells the young doctor, *Done somewhat wrong*
an got tha hex fixed on me. Tests results show
no abdominal abnormalities. Any history of mental
disorder in your family? The doctor asks, scribbles
notes on a chart. It's all in your head, he says.

Ain't ma head. Is ma belly, Sarah argues.
Primitive Faith preacher man seys ta me
'all of creation groaneth and travaileth in pain.'
Sarah smoothes her gray hair, then flinches.
Root Doctor don't right much like me seekin
healins with a preachin man, but I's reared up
on gospel an I know 'the pains of sheol
got hold upon me.' Who's Sheol, the doctor
wants to know. *Ain't who. Is where. Underworld.*
Wer'nt ya never learnt no Sunday School teachin?
It's here where's tha pain. Sarah points to her navel,
shrugs humped shoulders, throws off her gown,
    and dresses.
For sake of courtesy the doctor looks down, watches
her drag through the door, fanged in her imagined pain,
thinks what a wild story he'll tell next conference hour.

Abe takes Sarah home in their red Ford truck,
leaves her at the gate. *Most likewise fixed ya*
with a youngun in yer gut, he jokes, disappears
in a cloud of scorched dust past the leaning kudzu
strangled barn. *Hush up, ole man,* she waves him on.
Stranger things been knowed to happen. Lordy Jesus!
it's hotter'n hell. She shuffles to her little garden
patch, gathers what she needs in her apron, heats
water to pour in chipped cups. *"Washed in the blood*
of the lamb," she sings, stirs in bloodroot, dandelion,
gentian, psyllium, wild yam, and, in case Abe was right,
squaw vine for afternoon tea on the porch swing,
jes like them ladies in magazines, she croons.

Sweet Jesus! how ma head's gone ta hurtin, Sarah
frowns, adds pinches of skullcap and rosemary
to the potion she drinks, prays for wind to bend
the dogwoods and rubs red clover and nettles
on the boil festering her palm. *Started out oven burn,*
she remembers. Tomorrow she'll visit Fire talker,
young woman at the swamp's edge, who'll make
the sign, murmur words Sarah doesn't understand,
take the devil out of her hand.

Sarah's tired, she thinks, stretches out on the paint
blistered swing, feels a breeze flutter up
from the garden and cool her face while she drinks
a second tonic for dreams she wants to dream.
Hops, burdock, ginseng, Kava Kava, damiana,
passion flower. Again she sings, *"Amazing grace,*
how sweet tha sound, that saved a wretch like me."
The snakes grow docile while Sarah sleeps. Wasted
seeds drop from her limp hand and scatter in the wind.
They settle in hard baked soil and wait for the rain.

Angelica, *Angelica archangelica,*
Blessed Thistle, *Cnicus Benedictus*

Is only them what's chosen got tha power,
Abe says, leaves Sarah sleeping, places baby's
breath on the grave of little Isaac, their only child,
who died near 50 years gone, same day he was born.

Ms. Boyd is a poet living in Greenville. She plans to include this poem in her next book, That Breath Between Come and Go.

Immune-Based Therapy of Multiple Sclerosis

Michael D. Kaufman, MD

Multiple sclerosis (MS) is an inflammatory disease of the white matter of the brain and spinal cord. It is widely believed to result from an immunologically mediated response to an immunogen (a substance that generates an immune response) from outside the central nervous system (CNS), but the exact cause and pathogenesis are unknown.

In this paper I will discuss how the study of experimental allergic encephalomyelitis (EAE) has deepened our understanding of the immunologic mechanisms that may lead to the clinical expression of MS, and how treatment of such immunopathologies may ameliorate them. My objective is to provide a framework with which the reader may follow forthcoming therapies and which may encourage patients with early MS to seek appropriate therapy.

Background

I am optimistic about the coming era of the treatment for MS. During the past 10 years, two areas of investigation have shaped strategies designed to slow the course of this disease:

1. Magnetic resonance imaging. MRI has clearly demonstrated that MS is not quiescent even during clinical remissions. On the contrary, patients with the early relapsing-remitting and secondarily progressive forms of MS (Table 1, below) develop new lesions (visible by MRI) five to 10 times more often than they experience clinical attacks.[1] Most of the changes seen on MRI are "silent" or clinically undetectable by patients or their examining physicians.

Pathologic studies equate with the MRI changes. Early in the life of MS lesions, during the time that they enhance on MRI with gadolinium, there is a disruption of the blood-brain barrier and perivenular inflammation. Enhancement on MRI usually lasts two to six weeks and is followed by a chronic, unenhancing hyperintensity on T_2-weighted images.[2] In brains scanned postmortem, areas of signal change correspond to areas of demyelinization,[3] although occasionally no microscopic lesions are demonstrable.[4] Complete radiographic resolution occurs in less than 10% of MS lesions. Areas of white matter that appear normal by visual assessment of conventional MRI may be hyperintense when techniques such as magnetization transfer imaging are used.[5]

Despite the value of MRI scanning, its correlation with clinical symptoms is inexact because of difficulty in imaging lesions within the spinal cord, the failure of current MRI techniques to detect all pertinent abnormalities, and the clinical problems of localizing the symptoms of white matter disease. Nonetheless, the MRI helps in prognosis by determining the rate of appearance of new and expansion of old lesions, and it provides an objective outcome measure used in clinical trials.[6] Research using MRI suggests that effective treatment of MS must ameliorate not only acute symptoms but also

Table 1. Classification of multiple sclerosis by course[6]

1. **Early relapsing-remitting:** History of relapses and remissions, without progressive deterioration; usually the illness is of less than 10 years duration.
2. **Benign:** Relapsing-remitting MS, minimal, or no disability (usually a Kurtzke EDSS rating <3) after at least 10 years duration of disease.
3. **Secondarily progressive:** After an initially relapsing-remitting course, progressive deterioration for at least six months, with or without superimposed relapses.
4. **Primarily progressive:** Progressive deterioration from the outset, without any relapses or remissions.

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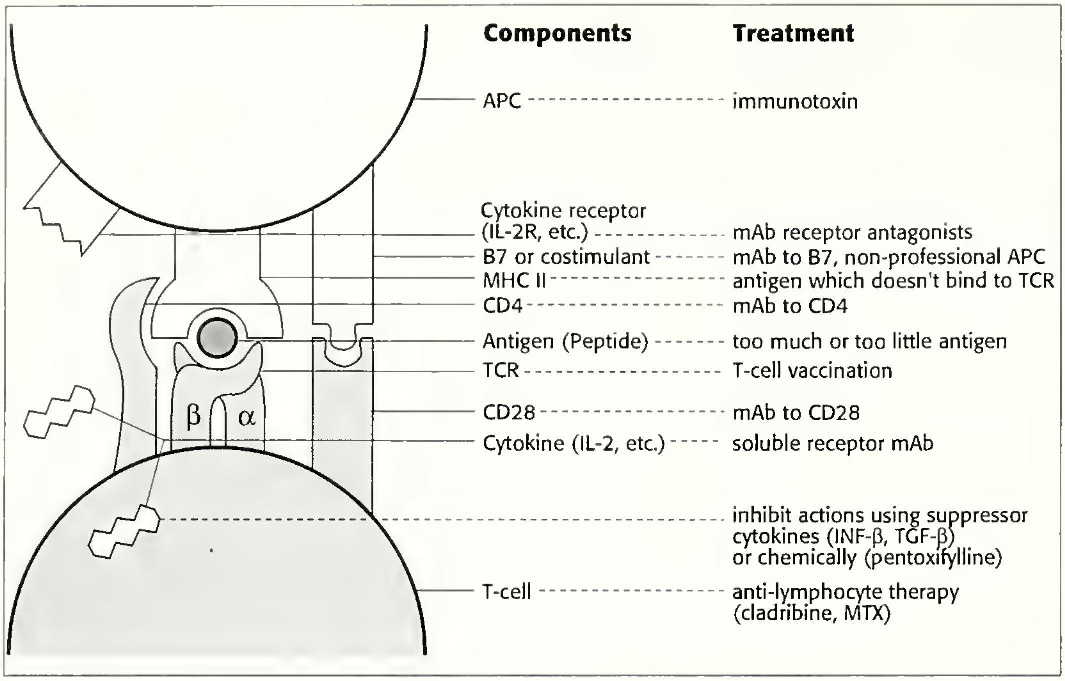
Components
Treatment
APC
immunotoxin
Cytokine receptor (IL-2R, etc.)
mAb receptor antagonists
B7 or costimulant
mAb to B7, non-professional APC
MHC II
antigen which doesn't bind to TCR
CD4
mAb to CD4
Antigen (Peptide)
too much or too little antigen
TCR
T-cell vaccination
β
α
CD28
mAb to CD28
Cytokine (IL-2, etc.)
soluble receptor mAb
inhibit actions using suppressor cytokines (INF-β, TGF-β) or chemically (pentoxifylline)
T-cell
anti-lymphocyte therapy (cladribine, MTX)

Fig 1: A simplified illustration of the proteins involved in cell-to-cell activation of a T lymphocyte by an antigen presenting cell. Possible sites for disrupting this activation are labeled.

the ongoing, subclinical immune assaults on the CNS.

2. A new understanding of the immune system. In 1934 Rivers produced demyelinization in the CNS of primates by inoculating them with myelin plus viral adjuncts.[7] The resulting condition, EAE, has been extensively investigated as an animal model which closely resembles MS pathologically. Although the congruence with MS is not perfect, EAE is important because it has led to potential therapies for MS. EAE is probably the best characterized model of an organ-specific autoimmune disease mediated by thymus-derived lymphocytes (T cells). EAE is induced by inoculating polypeptides derived from oligodendrocytes or astrocytes. Furthermore, EAE can be transferred to non-immunized animals by injecting T cells from EAE-affected animals.

Activation of T cells occurs when they contact antigen-presenting cells (APCs), which have appropriate immunogens (polypeptides) bound on their surface. In addition, APCs must present co-stimulatory molecules, which are also bound on their surface. Co-stimulatory molecules influence the direction of T cell maturation and subsequent cytokine production.[8] Once appropriate activation has occured, T cells secrete soluble proteins (cytokines), some of which cause the numbers of activated T cells to expand. Activated T cells can cross the blood-brain barrier where, if they find appropriate antigenic peptides presented by cells within the CNS, they initiate an immune response (e.g., EAE).

If T cells do not receive appropriate co-stimulation at the time of antigen presentation, they become anergic (unable to expand their numbers, even in the presence of antigenic polypeptides). If passively transferred, anergic T cells can actually inhibit induction of EAE. Therefore, a great deal of interest is now directed at understanding which cells produce effective co-stimulatory molecules and how this production is controlled. As might be expected, the induction of EAE can be inhibited by interfering with any of the steps in the sequence of APC-T cell interaction (Figure 1, above) or the entry of T cells into the brain.

Hematopoietic cells, particularly lymphocytes, regulate the immune response by secreting cytokines, leading to activation (or suppression) of "effector cells." Cytokines are soluble proteins that exert the same effects regardless of which antigenic polypeptides cause their production. Therefore it is possible to treat immune disease without knowing the nature of the specific antigen that causes it. We already know of a number of inhibitory cytokines (such as interferon beta-1b) that can reduce T cell activation, growth, and differentiation, and potentially are useful as therapeutic agents. Also being tested for their ability to suppress immune-mediated demyelination are naturally occurring immunosuppressive agents (such as alpha-fetoprotein and some vitamin D analogues); soluble ligands that bind to excitatory cytokines; drugs that block the action of excitatory cytokines; and cytokines linked to immunotoxins which can kill cytokine-responsive cells.

Figure 2, next page, demonstrates some of the immunopathologic mechanisms thought to lead to the development of MS, and highlights points of potential therapeutic attack. Attack at point I, the binding of the co-stimulatory protein B7 to its ligand, results in insufficient co-stimulation and T cell anergy. Attack at point II, using antigens that do not activate myelin-responsive T cells but can bind to those T cells, prevents activation. Attack at point III induces the mucosal immune system to produce regulatory cells, which enter the brain and secrete inhibitory cytokines.

Treating MS

At present, interferon beta-Ib (Betaseron) is the only drug approved by the Food and Drug Administration (FDA) for use in relapsing-remitting MS. Three additional drugs, interferon beta-1a, copolymer-I (COP-I), and high-dose intravenous methylprednisolone (followed by low-dose oral prednisone), have been shown to delay the onset, slow the rate of progression, or reduce the number of relapses in MS. I expect that these drugs will soon become part of the treatment of MS. Since most experimental trials of these agents have involved patients with relapsing-remitting MS, we must be cautious about extrapolating the results to all patients. For instance, early trials with COP-I suggest that it may not be effective in patients with chronic progressive MS.[9] Trials under way or completed in patients with chronic, progressive MS have used cytotoxic agents (azathioprine, methotrexate, cyclosporine, cyclophosphamide, or cladribine), and interferon beta-1b.

Next, I will discuss some of the new or pending therapies in more detail. I advise readers to interpret my conclusions cautiously because they are based on preliminary studies.[10] Finally, although impressive strides have also been made in the supportive care for patients with MS, that discussion is beyond the scope of this paper.

New Applications for the Use of Steroids

High-dose intravenous methylprednisolone appears to prevent or delay the appearance of clinically defined MS following optic neuritis.[11] Three hundred eighty-nine patients with acute optic neuritis were given one of three treatments: 1) 250 mg of intravenous methylprednisolone every six hours for three days followed by 1 mg/kg of prednisone by mouth for 11 days; 2) 1 mg/kg of prednisone by mouth for 14 days; or 3) placebo by mouth for 14 days.

The groups were not blinded to treatment since no sham intravenous administrations were given. Unexpectedly, during the subsequent two years, the group given high-dose intravenous methylprednisolone developed MS only half as often as either of the other two groups. Also surprising was the finding that recurrent optic neuritis developed more often in the group treated with prednisone by mouth for 14 days.

Many questions generated by this trial were left unanswered, such as whether methylprednisolone is superior to prednisone in equivalent doses, whether intravenous administration is superior to equivalent oral doses, whether slow tapering of glucocorticoid is necessary, and whether all exacerbations of MS should be treated in a similar manner. Despite these lingering and important questions, I believe it is prudent to give high-dose intravenous methylprednisolone for three to seven days, followed by tapering doses of oral prednisone for clear-cut, *significant* exacerbations of MS and for isolated optic neuritis. There is no universally agreed-upon definition of "*significant* exacerbation." I have used the following definition: Any new CNS symptom or rapid worsening of old symptoms with objective changes on neurological examination that produces an increase of one-half point on the Kurtzke Disability Status Scale (KDSS), a 10-point scale used to quantitate disability in MS.[12] The new symptom should be separated from progression of an earlier, documented exacerbation by at least 28 days, must persist for at least 48 hours, and there must be no other explanation and no concurrent fever or infection. The KDSS has deficiencies, but it is so widely used by clinical MS investigators that it is helpful in evaluating clinical studies, in following patients, and in communicating with others.

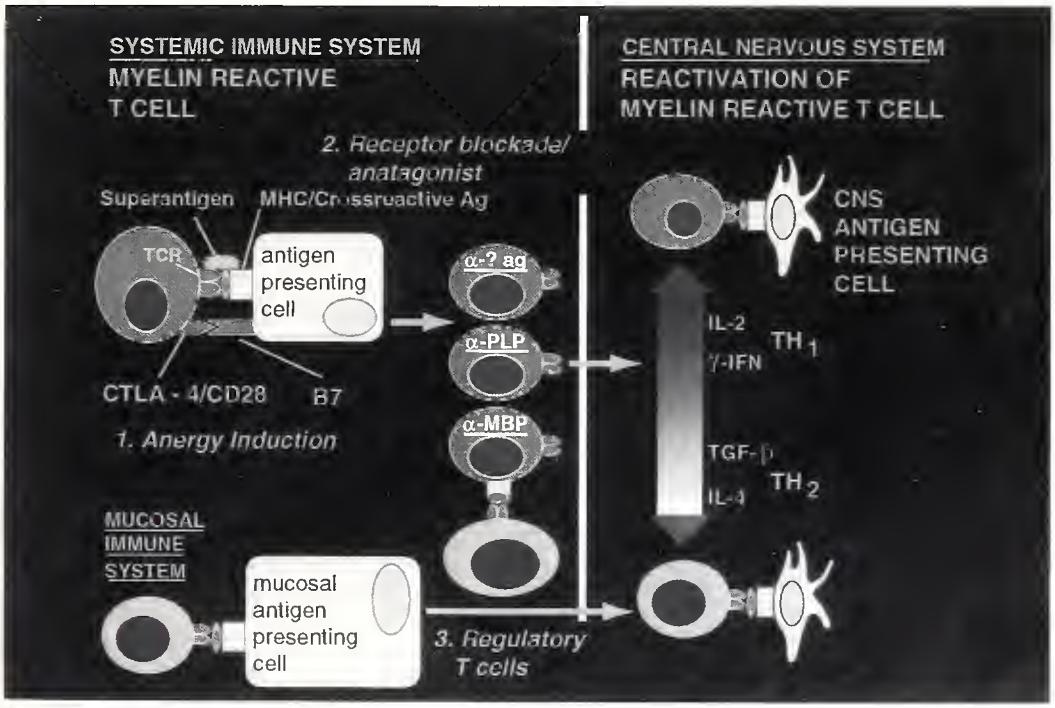

Fig 2: Possible immune mechanisms and treatments in MS (see text for details). Reproduced with permission of Dr. David Hafler.

Cost considerations may lead to giving intravenous methylprednisolone as a 1 gram bolus over one to two hours in an outpatient setting. The length of the prednisone taper after methylprednisolone has not been established, but data obtained with EAE suggest that the taper should be prolonged.[13]

Cytotoxic Therapy

Most trials of cytotoxic agents have been conducted in patients with progressive MS who generally respond less well to therapy than patients with early disease. However, cytotoxic agents, especially azathioprine, have been used in some European countries to treat patients with relatively early relapsing-remitting MS. In most controlled trials, cytotoxic agents have shown no or only moderate benefit, but the doses used have, in general, been below the limits of patient tolerance. Opinions differ about the risk/benefit ratio of cytotoxic treatment,[14,15] especially since these agents can actually enhance some immune responses, raising the possibility of adverse outcomes.

An exception to the less than encouraging results of cytotoxic treatment has been reported for cladribine.[16] A July 1994, report concerned 48 subjects treated with placebo or cladribine (0.1 mg/kg intravenously daily for seven days) in each of four successive months. All patients had primarily or secondarily progressive MS for at least two years. One year after treatment, the KDSS score of the cladribine group had improved slightly compared to baseline, but that of the placebo group had deteriorated significantly. Because of these results, the trial was stopped after interim analysis of the data, and a larger study is now under way, involving an anticipated 150 patients who will be given subcutaneous cladribine.

The indications for the use of cytotoxic agents in MS are not clear, and many potentially reasonable approaches (such as the concurrent use of cytotoxic agents and Betaseron) await investigation. As with other treatments, I suspect that these drugs will work better when administered to relatively young patients with mild disease. Unfortunately, the impairment of fertility by some of these drugs limits their usefulness. Furthermore, although the risk of secondary malignancy arising from cladribine or Betaseron treatment is not known, this is a small but definite risk with some cytotoxic drugs, particularly alkylating agents such as cyclophosphamide. Intermittent dosing schedules might reduce the incidence of this complication.

Cytokine Therapy

In spring 1993, Betaseron was reported as effective in relapsing-remitting MS.[17] A total of 372 subjects with early relapsing-remitting MS, were given placebo, or 1.6 million units, or 8 million units of Betaseron subcutaneously every other day. The group given high-dose Betaseron had 31% fewer exacerbations (and an even greater reduction in severe exacerbations) over three years. Even more striking was the finding that the total brain area involved with MS lesions (measured by MRI) was stable in the high-dose Betaseron group but increased by 17% in the placebo group.[18] It is sometimes difficult to choose patients for Betaseron therapy since exacerbations are not always easy to identify. Guidelines have been published by the American Academy of Neurology.[19]

Less than 10% of patients treated with Betaseron experience significant side effects (depression, fatigue the day after injection, injection site necrosis, and liver or bone marrow abnormalities). Flu-like symptoms are universal at first, but can be minimized by giving a one-half dose of Betaseron for the first two weeks, administering it at night, and using acetaminophen or a nonsteroidal anti-inflammatory agent before and on the morning after an injection. In a small number of patients, Betaseron appears to amplify depression; four suicide attempts were reported in patients treated in the 1993 study. I believe that depressed patients should undergo psychiatric evaluation and that their psychiatrists be notified when Betaseron therapy is contemplated.

Other therapies are being investigated. In October 1994, the preliminary results were presented of a large controlled trial of interferon beta-1a in a group of patients with relapsing-remitting MS. Treatment reduced the number of exacerbations and slowed the progression of disease during the two years of the trial. A small trial of an inhibitory cytokine (transforming growth factor - beta) is now under way at the National Institutes of Health.

Antigen-Specific Immunotherapy

Antigen-specific therapy reduces the immune response to specific polypeptides. Thus far, antigen-specific therapies have targeted myelin proteins thought to be important immunogens in MS. The advantage of antigen-specific therapy is that it leaves the immune responses against untargeted antigens intact. In October 1994, preliminary results from a large trial using COP-I showed it to have an efficacy similar to Betaseron in patients with early relapsing-remitting MS. The drug was particularly effective in patients with a KDSS score of 2 or less (that

Table 2. Diagnostic criteria for multiple sclerosis[24]

Category	Attacks	Clinical findings		*Paraclinical findings		‡OCB/+IgG
Clinically definite	2	2				
	2	1	and	1		
Laboratory definite	2	1	or	1	and	+
	1	2			and	+
	1	1	and	1	and	+
Clinically probable	2	1				
	1	2				
	1	1	and	1		
Laboratory probable	2				and	+

* includes CT, MRI, VEP, SSEP, BAEP, neuropath. tests, balance tests, etc.
‡ OCB = Oligoclonal bands in cerebrospinal fluid
IgG = Elevated immunoglobulins produced in CNS

is, very mild disease). Interestingly, the benefit during the last six months of the trial was greater than that during the first six months of the trial. Side effects were minimal except for a "vasomotor reaction" (palpitations, flushing, and difficulty breathing) experienced by 16% of the trial subjects using COP-I. The vasomotor reaction can be extremely distressing, but led to discontinuation of the medication by only 2% of experimental subjects. COP-I has rarely caused marked lymphadenopathy and eosinophilia, necessitating its withdrawal. The FDA has not yet approved COP-I, but is likely to be the next significant drug released for use in patients with relapsing-remitting MS.

The gut contains a large number of lymphocytes, especially in Peyer's patches. These lymphocytes are believed to regulate potentially harmful immune responses to new, ingested antigens, and to prevent invasion of the gastrointestinal mucosa by pathogens. The mucosal immune cells normally produce 70% of all antibodies secreted by the immune system, generally in the form of IgA secreted into the gut. Oral tolerance, a dampening of the systemic immune response to orally ingested proteins, is mediated by regulatory T cells generated in the gastrointestinal tract, in response to polypeptides presented in the gut. Orally administered antigens can suppress several animal models of experimental autoimmune disease including EAE, uveitis, myasthenia gravis, adjuvant-induced arthritis, and diabetes mellitus.

Phase I human clinical trials of induced oral tolerance have demonstrated promise for MS,[20] rheumatoid arthritis, and uveitis. A Phase III, double-blind, placebo-controlled study has been initiated in the US and Canada to test whether ingested bovine myelin can affect relapsing-remitting MS. The hope is that regulatory T cells recognizing myelin will migrate from the gut to the CNS where they will attach to myelin and release suppressor cytokines, thereby reducing inflammation and consequently the number of MS relapses.[21]

> "Until we know more about interferon-beta, I think that patients with chronic progressive disease, particularly those under age 40, should be considered for treatment with one of the cytotoxic agents."

T-cell vaccination is another antigen-specific therapy that has undergone a Phase I trial. T cells reactive to myelin basic protein (a polypeptide of myelin) were expanded, irradiated, and then inoculated into the donor. This resulted in a depletion of T cells reactive to myelin basic protein, presumably caused by clones of T cells directed against the vaccinated T cells.[22]

The Near Future

Safe and cost-effective treatment of MS is needed, because after 15 years, 50% of MS patients are disabled to the point that they must use a cane to walk half a block or are wheelchair- or bed-bound (KDSS ≥6).[23] One can liken the immune changes of MS to a snowball that becomes progressively more difficult to stop as it rolls downhill. Early treatment may allow us to use the least-toxic therapies, but unless clinical or genetic studies allow us to stratify patients by prognosis, early therapy will also result in treatment of patients who would have remained stable for long periods of time (6% of patients have a 15-year or more interval between their initial symptom(s) and first relapse). In order to treat patients in the early stages of disease, appropriate diagnostic studies must be performed, and established diagnostic criteria followed (Table 2, previous page, shows Poser's widely used criteria).[24]

Because antigen-specific immunotherapies have fewer side effects than cytokine therapy, I believe that we will soon see patients with early relapsing-remitting disease begin treatment with COP-I or oral myelin. Poorly responsive or more disabled patients probably will be treated with some form of interferon-beta. Data are not yet available to support concurrent therapies, but I expect that combinations of Betaseron with COP-I, one of the cytotoxic agents, or other treatments will surely be investigated.

Until we have more information about interferon-beta, I think that patients with chronic progressive disease, particularly those under age 40, should be considered for treatment with one of the cytotoxic agents. Other inhibitors of excitatory cytokines will be developed and other treatments will be forthcoming as future investigations provide us with a better understanding of the cause of MS, allowing us to control it or prevent it entirely with disease-specific treatments. ❑

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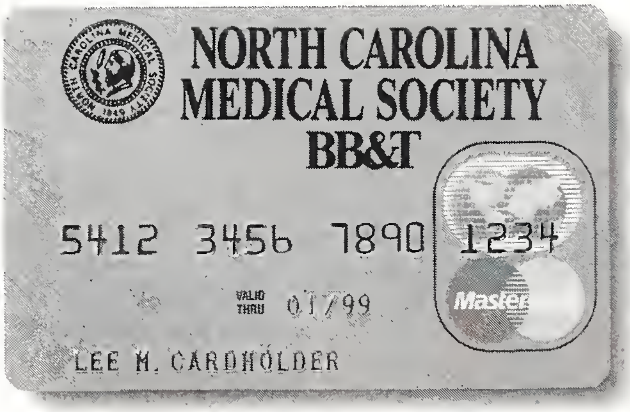

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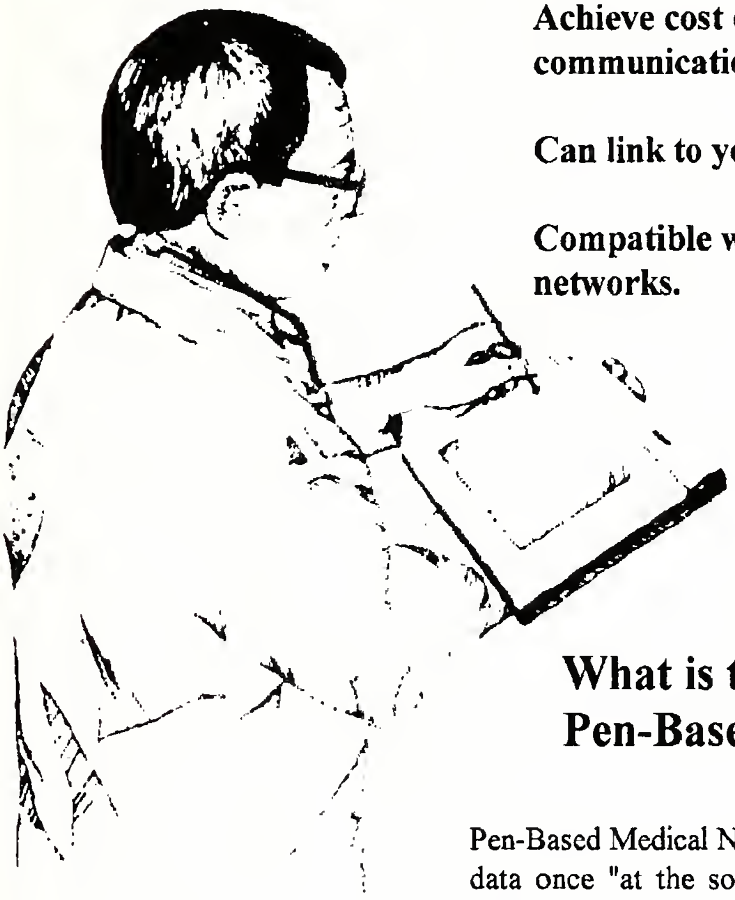

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Postpartum Psychiatric Disorders

A Guide for the Practicing Physician

Claudia P. Shepard, MD, and Burton V. Reifler, MD, MPH

Since even Hippocrates and his contemporaries considered the postpartum period a time of vulnerability to mood and thought derangement, it is no surprise that over the past decade women themselves have been promoting the concept. Supermarket magazines, television programs, and support agencies disseminate considerable information (and some myths) about postpartum psychiatric disorders, especially postpartum depression. The Hippocratics believed that suppressed lochial discharge traveled to the head where it caused agitation, delirium, and mania; modern popular lore contends that hormonal changes produce a spectrum of problems from the "blues" to psychosis.

There is little agreement about the mechanisms that produce postpartum psychiatric disorders—even whether to give them an official diagnostic classification—but no one disputes that the postpartum period is an especially unfortunate time to suffer an episode of mental illness. The emotional, financial, and other costs of such an illness are paid not just by the patient but by her partner, her baby, and any other children in the household as well. Various studies have claimed that postpartum psychiatric disorders are connected to subsequent events ranging from subtle interference with healthy childrearing to physical abuse and neglect of the child. There is little doubt that depressed mothers and their babies display a characteristic paucity of interactive behaviors, and that the children have mood problems, poor cognitive development, and more visits to the doctor. A recent study in *Pediatrics*[1] indicates that mothers who rate themselves as depressed after pregnancy tend to treat their children as "fragile," and have more problems dealing with their babies.

In North Carolina in 1993, there were 101,339 births, of which 35,326 were first births. Postpartum depression is estimated to affect from 3% to more than 25% of mothers, especially after a first birth. Being conservative, if we assume that 10% of women will have an episode of postpartum depression, this translates into about 11,000 new cases in North Carolina every year! Leaving theories and controversies aside, postpartum psychiatric disorders constitute a real public health issue.

A Typical Patient

Rita, a woman in her late 30s, first came to us about three months after the birth of her first child. She and her husband, who had recently lost his job, had not been getting along. After one especially heated argument, she threatened suicide and was admitted to the psychiatry service with a provisional diagnosis of major depression.

Her past medical history was unremarkable. Her childhood had been characterized by poverty and family conflict. Both parents suffered from alcoholism, but the patient herself avoided alcohol and other drugs. During a few days of hospitalization, she did well in group and family therapy. She was given no medication, and was discharged to continue outpatient marital and stress management therapy with a psychologist. She returned to her work in the factory where she has been employed since finishing the 11th grade, and eventually resolved some of the problems in her marriage.

She had no further depression until the planned and desired birth of her second child. Except for a single day of intermittent weeping and mild anxiety on the day she came home from the hospital (postpartum day 2), she had no problems until her mood began to decline steeply late in the third month postpartum. A month later she consulted her former therapist. She was referred to a psychiatrist, who prescribed antidepressant medication. She needed a higher-than-usual dose, and it took somewhat longer than usual for her to regain full range of affect, full concentration, and her usual optimism. Marital conflict recurred, but then receded as her treatment progressed.

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Postpartum Depressions

Postpartum psychiatric disorders are customarily sorted into three categories: blues, depression, and psychosis.

The blues, often called "baby blues" or "maternity blues," occur in an estimated 50% of mothers, but the accuracy of such estimates is uncertain. Typically, patients with the blues have brief, recurrent episodes of feeling vaguely uneasy, confused, and suddenly and intermittently tearful and sad. They recover to fully normal mood and thinking within minutes or hours. This syndrome is generally confined to the first week postpartum, and in England is sometimes referred to as the "third-day blues" because of its predictable onset and remission. No simple hormonal explanation for this phenomenon exists, but changes in levels of cortisol (which peaks just before birth and plummets afterward), estrogen, and progesterone have been suggested. The third-day postpartum marks the confluence of changes in these three hormones. There is no diagnostic code for this syndrome.

Postpartum depression is sometimes viewed as garden-variety depression that coincidentally occurs postpartum, but it is more likely a heterogeneous entity that includes some disorders exclusively related to the unique biological or situational aspects of childbearing. Postpartum depression includes the usual manifestations of depression: increasingly depressed mood, appetite change, loss of interest in activities, social withdrawal, difficulty maintaining sleep, low energy, feelings of excessive guilt, hopelessness or helplessness, poor concentration or indecisiveness, and recurrent thoughts of death. The peak incidence occurs between the third and ninth months postpartum.

The diagnosis is sometimes difficult because many of the symptoms resemble the predictable effects of sleep deprivation common to fathers and mothers postpartum. (But remember that most babies are on their way to sleeping through the night by the age of two months.) Practitioners who monitor postpartum women for mood problems only during the first two months may be stopping too early to pick up the majority of cases. Women at risk for depression include those with a personal or family history of postpartum depression and those with financial, marital, or other socio-environmental stressors. Postpartum depression is coded as major depression, specifying postpartum onset.

A useful tool for diagnosing postpartum depression is the Edinburgh Postnatal Depression Scale,[2] a 10-item, self-report instrument developed in Great Britain by researchers who noticed that the usual depression inventories failed to identify a substantial number of depressed postpartum patients. The instrument (see Appendix, next page) is brief and simple (administration usually takes less than five minutes), making it a logical choice for use by primary care practitioners, including obstetricians and pediatricians. It is not a substitute for a diagnostic interview, but it is more sensitive and specific than other non-specific depression scales (a finding that supports the idea of postpartum depression as a distinct entity).

It is important that clinicians be vigilant for the onset of substance abuse during the course of a postpartum depression, since women who are vulnerable to alcohol problems are prone to using alcohol to mediate unpleasant feelings. Even women who have been abstinent during pregnancy may resume or develop problem drinking if they become depressed.

Puerperal psychosis is a more definable, discrete disorder than postpartum depression, but it is quite rare, occurring about once in 1,000 births. Almost all postpartum psychoses occur during the first month after birth, most within the first week. The distinctive manifestations of this devastating illness are confusion and delusions concerning the baby. The mother may display hyperactivity, severe mood lability, pressure of thought, and impulsivity. Some authors identify it as a confusional psychosis. Dramatic, schizophrenia-like hallucinations, if they occur, are not prominent—this is usually an affective, rather than thought-based, disturbance.

Women with postpartum psychosis may seriously harm their infants, often with little warning. Although there is almost no way to predict which women will develop this disorder, a family or personal history of bipolar disorder is a risk factor, as is primiparity or a history of previous postpartum psychosis (the recurrence rate is around 30%). Nothing suggests that environment or social stressors play an important role. Postpartum psychosis is classified as a psychotic disorder not otherwise specified, with a modifier to indicate occurrence in the postpartum period.

Treatment

Treatment of these disorders can be readily outlined. The results of hormone therapies have been, at best, equivocal. Postpartum blues need no drug treatment, since by definition, they are mild and short-lived. Puerperal psychosis is a psychiatric emergency, and admission to an inpatient treatment facility is imperative. Treatment may include lithium (both acutely and for prophylaxis), antipsychotics such as haloperidol or loxapine, or electroconvulsive therapy.

Postpartum depression is best treated like other depressions. The tricky part is the diagnosis, because the patient herself may not voice complaints. Persistence may be needed to find the right medication; these patients may require higher doses or a longer period of treatment, or a trial of a different drug. We recommend that non-psychiatrist clinicians use an antidepressant with which they are familiar, preferably one of the serotonergic agents whose side effects tend to be mild. Examples of serotonergic agents include sertraline (Zoloft), paroxetine (Paxil), fluoxetine (Prozac), and venlafaxine (Effexor). If the patient does not respond readily or if thorough follow-up is too difficult in a busy practice, referral to a psychiatrist is in order. Referring the patient to social and other services, especially a postpartum depression support group if available, is also important. Family treatment can be helpful.

North Carolina has resources for patients and their doctors who have questions about postpartum psychiatric disorders. Any of the academic medical centers' departments of psychiatry will have one or more persons with interest or expertise in the field. The Postpartum Support Program at Duke University (919/684-3714) in Durham offers several different services.

Support groups can be found in a number of North Carolina cities and towns. Patients who want individual support or help locating or starting a support group may also contact Depression After Delivery (DAD) at P.O. Box 1282, Morrisville, PA 19067; 800/944-4773. DAD is a nationwide support network founded in the early 1980s by a woman who had experienced puerperal psychosis. DAD will send extensive literature and a list of volunteers and interested doctors and other therapists; the organization will request donations in return. ❑

References

1 Burger J, Horwitz SM, Forsyth BW, Leventhal JM, Leaf PJ. Psychological sequelae of medical complications during pregnancy. Pediatrics 1993;91(3):566-71.

2 Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiat 1987;150:782-6.

Appendix. Edinburgh Postnatal Depression Scale[2]

In the past seven days:

1. I have been able to laugh and see the funny side of things
    - As much as I always could
    - Not quite so much now
    - Definitely not so much now
    - Not at all
2. I have looked forward with enjoyment to things
    - As much as I ever did
    - Rather less than I used to
    - Definitely less than I used to
    - Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
    - Yes, most of the time
    - Yes, some of the time
    - Not very often
    - No, never

4. I have been anxious or worried for no good reason
    - No, not at all
    - Hardly ever
    - Yes, sometimes
    - Yes, very often

*5. I have felt scared or panicky for no very good reason
    - Yes, quite a lot
    - Yes, sometimes
    - No, not much
    - No, not at all

*6. Things have been getting on top of me
    - Yes, most of the time I haven't been able to cope at all
    - Yes, sometimes I haven't been coping as well as usual
    - No, most of the time I have coped quite well
    - No, I have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping
    - Yes, most of the time
    - Yes, sometimes
    - Not very often
    - No, not at all

*8. I have felt sad or miserable
    - Yes, most of the time
    - Yes, quite often
    - Not very often
    - No, not at all

*9. I have been so unhappy that I have been crying
    - Yes, most of the time
    - Yes, quite often
    - Only occasionally
    - No, never

*10. The thought of harming myself has occurred to me
    - Yes, quite often
    - Sometimes
    - Hardly ever
    - Never

Instructions: The mother is asked to underline the response that comes closest to how she has been feeling during the previous seven days. All 10 items must be completed. **Scoring:** Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptom. Items marked with an asterisk are reverse scored (i.e. 3, 2, 1, and 0). The total score is calculated by totaling the scores for each item. The validation study showed that mothers who scored above a threshold 12/13 were likely to be suffering from a depressive illness of varying severity. The EPDS score should *not* overrride clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt *during the previous week*, and in doubtful cases it may be repeated after two weeks. The scale will not detect mothers with anxiety neuroses, phobias, or personality disorders.[2]

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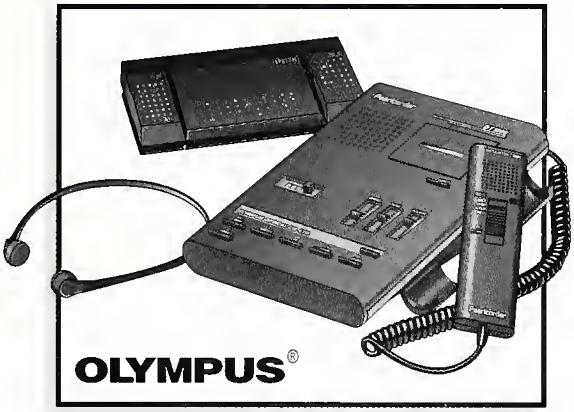
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Acute Myocardial Infarction

A Guide for North Carolina Doctors

Marcus L. Williams, MD, James J. O'Meara, MD, David A. Tate, MD, and Ross J. Simpson, Jr., MD

The American Heart Association and American College of Cardiology consider early use of thrombolytics essential to the treatment of appropriate patients with acute myocardial infarction (AMI).[1] Thrombolytic therapy can improve reperfusion of the coronary arteries, salvage ischemic myocardium, and reduce mortality.[2] In this article, we review current recommendations for management and provide two simple algorithms that have helped us improve the care of AMI patients at our hospital.

The first important treatment goal in AMI is to promptly reopen the occluded coronary artery. Any delay translates into a worse outcome: mortality is reduced by 50% when AMI patients receive a thrombolytic within one hour of the onset of symptoms;[3] when there is a delay of four to six hours, there is less than a 20% reduction in mortality, and the benefit diminishes further with longer delays. Minimizing delay is essential to the care of patients with myocardial infarction. We want to underscore the national recommendation that patients with acute myocardial infarction receive aggressive interventional treatment within 30 minutes of presentation.[1]

One important way to shorten the time lapse before treatment is to reduce variations in management. Practice variations mean that patients with similar clinical profiles will be treated differently, and as a result, some will get substandard (or more expensive) care. Variability in disease management is part of our present health care system, but it represents an opportunity to improve the overall quality of care for all Americans. For example, the use of clinical guidelines can improve the quality of care for certain disorders,[4] primarily by developing a generally acceptable approach to treatment. In the case of AMI, in order to simplify the use of thrombolytics (thereby avoiding complex and time-consuming decisions), we have employed simple guidelines (Figures 1 and 2, next page).

Our university hospital participates in the National Registry for Myocardial Infarction, which has now enlisted nearly 900 institutions and enrolled more than 200,000 heart attacks.[5] In 1993, the Registry reported that the median time lapse before beginning treatment of AMI with a thrombolytic agent at our hospital was 70 minutes. The national average is 59 minutes. To address this problem, we organized a Chest Pain Team to develop an AMI guideline for use in the Emergency Department. Our most recent survey shows that the median time to treatment is now 50 minutes!

The appropriate use of AMI guidelines can dramatically reduce mortality, adverse cardiac events, and length of hospital stay. Our experience with our guidelines prompts us to share them. Furthermore, the guidelines provide a format for reviewing the state of the art in managing AMI patients.

Thrombolytic Agents

The two most commonly used thrombolytic agents are recombinant tissue plasminogen activator (rt-PA) and streptokinase. The two differ to some degree in their fibrin specificity, duration of action, potential allergic reactions, efficacy, and cost.

Streptokinase activates circulating plasminogen and therefore does not itself possess fibrin specificity.[6] It is derived from Beta-hemolytic streptococci and can cause an allergic response (pruritis, rash, and low-grade fevers occur in about 5% of patients, especially those who have had a recent streptococcal infection). The reaction is usually mild and responds to antihistamines. Serious anaphylaxis occurs less than 0.2% of the time.

Streptokinase is one of the best studied thrombolytics and the cheapest. A 1.5 million-unit dose given over one hour produces systemic fibrinolysis which persists for up to 24 hours. Antibodies may develop after five days of treatment and persist for six months; therefore, re-treatment with streptokinase (or related compounds like APSAC) is not recommended. Hypotension occurs in about 15% of patients; it is helped by decreasing the rate of infusion and volume expansion.[7]

Tissue plasminogen activator (rt-PA, Activase) is a naturally occurring human protein without antigenic properties. It is made using recombinant DNA technology.[7] Its pharmacologic half-life is five

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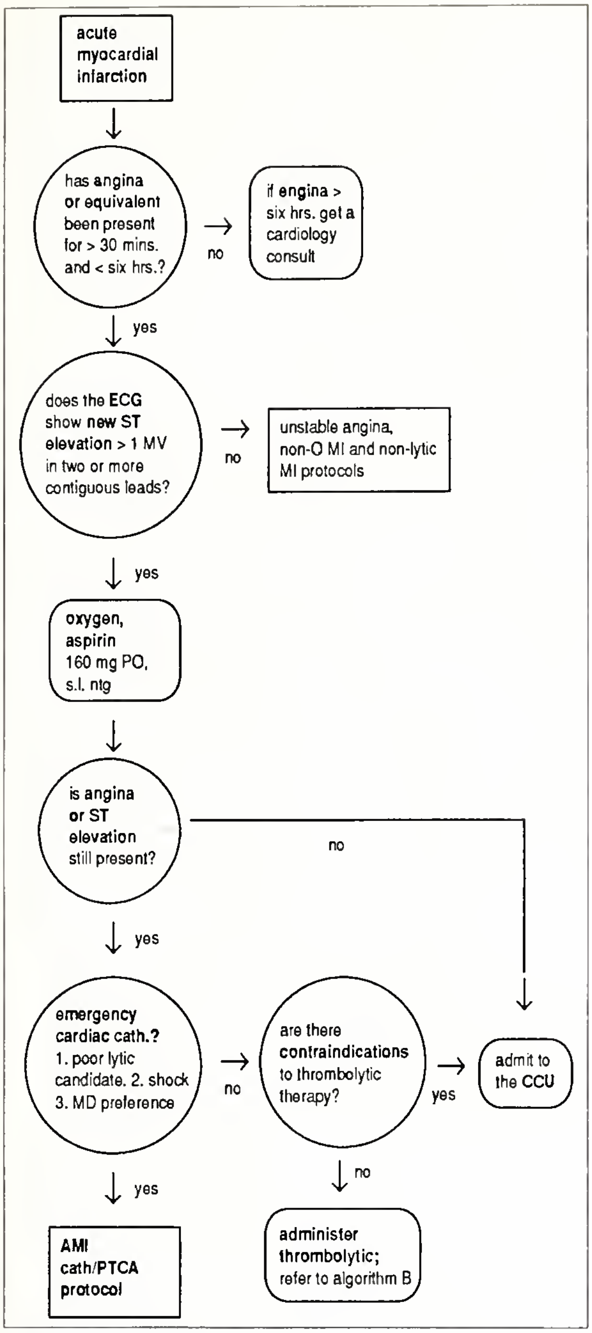
acute myocardial infarction
has angina or equivalent been present for > 30 mins. and < six hrs.?
no
if engina > six hrs. get a cardiology consult
yes
does the ECG show new ST elevation > 1 MV in two or more contiguous leads?
no
unstable angina, non-Q MI and non-lytic MI protocols
yes
oxygen, aspirin 160 mg PO, s.l. ntg
is angina or ST elevation still present?
no
yes
emergency cardiac cath.? 1. poor lytic candidate. 2. shock 3. MD preference
no
are there contraindications to thrombolytic therapy?
yes
admit to the CCU
yes
AMI cath/PTCA protocol
no
administer thrombolytic; refer to algorithm B

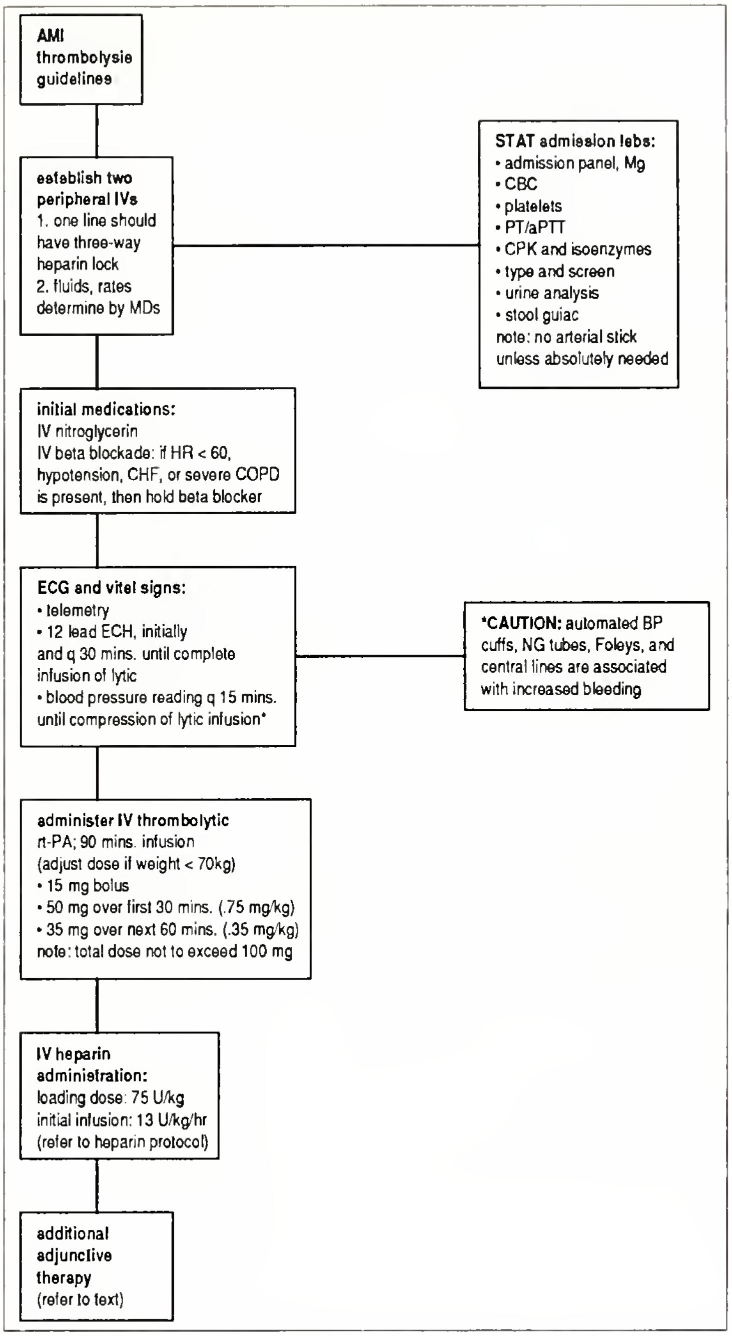
AMI thrombolysis guidelines
establish two peripheral IVs
1. one line should have three-way heparin lock
2. fluids, rates determine by MDs
STAT admission labs:
• admission panel, Mg
• CBC
• platelets
• PT/aPTT
• CPK and isoenzymes
• type and screen
• urine analysis
• stool guiac
note: no arterial stick unless absolutely needed
initial medications:
IV nitroglycerin
IV beta blockade: if HR < 60, hypotension, CHF, or severe COPD is present, then hold beta blocker
ECG and vital signs:
• telemetry
• 12 lead ECH, initially and q 30 mins. until complete infusion of lytic
• blood pressure reading q 15 mins. until compression of lytic infusion*
*CAUTION: automated BP cuffs, NG tubes, Foleys, and central lines are associated with increased bleeding
administer IV thrombolytic
rt-PA; 90 mins. infusion
(adjust dose if weight < 70kg)
• 15 mg bolus
• 50 mg over first 30 mins. (.75 mg/kg)
• 35 mg over next 60 mins. (.35 mg/kg)
note: total dose not to exceed 100 mg
IV heparin administration:
loading dose: 75 U/kg
initial infusion: 13 U/kg/hr
(refer to heparin protocol)
additional adjunctive therapy
(refer to text)

Fig 1 (left): AMI guideline outlines the intial decision process involved in the acute management of these patients. Unstable angina/non-Q wave myocardial infarction is a different guideline not presented. One of the most critical decision points in acute management is whether to attempt to establish patency of the occluded coronary vessel by thrombolysis or PTCA. Circles are clinical decision points; squares are points of specific actions. This guideline is not to be considered a standard of care; it is most effective when adapted to the local clinical setting for a particular hospital. **Fig 2 (right):** Thrombolysis guideline for AMI. Initial medications must be based on initial presentation and patient's hemodynamic stability. We chose rtPA because of its superior results in the GUSTO trial and to simplify choices of agents in order to minimize confusion and delay in initiating treatment. The differences between thrombolytics are small; what is more important is the appropriateness and efficiency of administration.

minutes. It binds to the serine residues on the fibrin molecule which activates rt-PA which then converts plasminogen to plasmin. Less circulating fibrinogen is depleted than with streptokinase. Other advantages of rt-PA are its lack of antigenicity and therefore of subsequent allergic reactions. It induces a significantly higher early coronary reperfusion rate compared to streptokinase, but the re-occlusion rate is also higher and heparin is needed to maintain the initial early patency benefit.[3] rt-PA is one the most costly thrombolytics on the market.

Several studies have looked at front-loaded and weight-adjusted dosing with rt-PA; they have found no increase in adverse events when compared to the traditional dosing of rt-PA.[3,8] Wall found that a front-loaded and weight-adjusted dose given over 90 minutes led to a superior patency rate at 90 minutes (83%), a re-occlusion rate of only 4%, and no increased bleeding risk.[8] The TAPS trial found the 90 minute coronary patency rate was 84% with front-loaded rt-PA vs 70% with APSAC (p=0.0007); there was a trend toward lower mortality, fewer recurrent ischemic events, and bleeding.[8] The RAAMI investigators found that a front-loaded, 90 minute infusion of rt-PA gave a higher (76% vs 63%) 60-minute patency rate than a three-hour infusion in patients with AMI.[9] Since front-loaded rt-PA can be given safely, and since recent data suggest that early patency may be better, we recommend a 15 mg bolus followed by 50 mg or .75 mg/kg (whichever is least) over the next 30 minutes followed by 35 mg or .35 mg/kg (whichever is least) for the next hour. The total dose should not exceed 100 mg (see Figure 2, previous page).

Comparison of thrombolytic agents. The GUSTO trial,[3] the largest and most recent thrombolytic clinical trial to date, compared four treatment strategies: streptokinase and subcutaneous heparin, streptokinase and intravenous heparin, rt-PA and intravenous heparin, and streptokinase plus rt-PA and intravenous heparin. In spite of a higher incidence of intracerebral bleeding (0.94% vs 0.52%), the mortality rate with rt-PA treatment was 14% lower than with streptokinase treatment (6.3% vs 7.3%). A sub-study within GUSTO suggests that the mortality advantage with rt-PA is due to significantly improved early coronary artery patency. Although rt-PA plus intravenous heparin appears slightly more efficacious than streptokinase, the difference is small. What is more important is to administer some thrombolytic agent in a timely fashion to the appropriate AMI patient.

Thrombolytic Considerations

Who should get initial thrombolytic therapy for AMI: electrocardiogram (ECG) findings and presenting symptoms. The indications for thrombolytic treatment are based on the ECG and presenting symptoms. Patients with ST elevation (>1 mV in the limb leads, or >2 mV in the precordial leads on a 12 lead ECG) in two or more contiguous leads are very likely (unless the changes are known to be old) to have an AMI. Angiographic studies of patients with such findings demonstrate thrombotic occlusion in 90%.[10]

It takes about six hours for the wave front of infarction to progress transmurally from the subendocardium.[11] The greatest preservation of left ventricular function occurs in patients who are treated during this six-hour period. Therefore, patients who present with chest pain and appropriate ECG findings should receive thrombolytic therapy as soon as possible, unless contraindications exist.

Late thrombolytic therapy. The "window of optimal opportunity" for starting thrombolytic therapy lies between 30 minutes and six hours after onset of symptoms, but there is evidence of benefit to patients treated later than that. The GISSI trial found a trend toward lower mortality in patients treated 24 hours after onset of symptoms.[12] The Late Assessment of Thrombolytic Efficacy (LATE) trial studied 5,711 AMI patients randomly treated with recombinant thromboplastin activator (rt-PA) or placebo between six hours and 24 hours after onset of chest pain.[13] Those treated within 12 hours had a significant (27%) reduction in mortality (8.9% of those treated died, compared to 12% of controls; p = 0.023); there was a statistically insignificant trend toward reduced mortality in those treated after 12 hours (8.7% vs 9.2%).[14]

Unfortunately, the LATE trial showed that rt-PA-treated patients had a stroke rate twice as high as placebo-treated patients, and there was increased incidence of cardiac rupture and a greater hazard of early death due to congestive heart failure. Patients at increased risk for intracerebral bleeding and those with very poor left ventricular function may be poor candidates for thrombolytic therapy.[14] The decision to treat must be based on the judgment of the clinician: Since patients who present six to 12 hours after the onset of symptoms are less critically dependent on small further delays in treatment, consultation with a cardiologist may be obtained before beginning thrombolytic therapy in these patients.

Contraindications to thrombolysis. Table I, next page, shows the list of absolute and relative contraindications to thrombolytic therapy. Most important is the risk of bleeding, and the most catastrophic outcome for treated AMI patients is acute intracranial hemorrhage (with an in-hospital mortality of 50%).[15] Fortunately, the incidence of intracranial hemorrhage has been less than 1% in large clinical trials.[6] Both the ISIS-3 and GUSTO trials showed that the risk of intracranial hemorrhage was about twice as high with rt-PA as with streptokinase.[3] Higher doses of rt-PA are associated with an increased rate of intracerebral bleeding.[15] Patients weighing <70 kg are at an increased risk of bleeding,[16] possibly because they get a higher relative dose of rt-PA (suggesting the need for weight-adjusted dosing). Patients with acute hypertension, known cerebral vascular disease, or already on anticoagulants have a greater risk for intracranial bleeding.

Clinicians must weigh the possible benefits of thrombolysis. Benefits are likely to be less in patients with "small" rather than "large" myocardial infarctions, inferior versus anterior infarctions, and when given late in the course of infarction. Advanced age itself should not be a contraindication to thrombolytic therapy, but many studies have excluded patients over 75 years old, so few data are available. Complications may be more common in such patients, but their absolute mortality is higher, too, so they stand to gain the most from thrombolysis. As always, decisions must be individualized.

Emergency cardiac catheterization and primary angioplasty. Angioplasty is a reasonable alternative to intravenous thrombolytic therapy for AMI and may even be preferable in some patients.[17] The Primary Angioplasty in Acute Myocardial Infarction (PAAMI) trial found the results of emergency angioplasty superior to thrombolytic therapy.[17] Factors limiting successful primary angioplasty include the availability of a catheterization lab, a timely response, and the technical ability of the interventional team.

Many patients with AMI have contraindications to thrombolytic therapy. Those who present within 12 hours of the onset of should be considered for angioplasty. In addition, patients with symptoms and signs of AMI, but without diagnostic ECG, should be considered for emergency cardiac catheterization, both to define coronary anatomy and to undertake angioplasty if indicated. Finally, patients in cardiogenic shock from AMI have an in-hospital mortality greater than 80%; this can be halved by emergency angioplasty.[18]

Whenever the efficacy of thrombolytic therapy is doubtful, primary angioplasty should be considered. In such cases, the cardiologist on call should be contacted immediately to mobilize catheterization laboratory staff. In small hospitals without resources for PTCA, patients should receive thrombolytic therapy unless there is a contraindication. If there is a contraindication, the patient should be transferred to a hospital with the capacity for emergency PTCA.

Adjunctive Therapy for AMI

Aspirin irreversibly binds to platelets and inhibits aggregation. This is important because during the early stages of coronary occlusion, platelets form the bulk of the clot. The ISIS-2 study randomized 18,000 patients to receive placebo, low-dose aspirin (160 mg), streptokinase, or a combination of both aspirin and streptokinase.[19] Aspirin alone reduced cardiovascular deaths by 20% and in combination with streptokinase, a 40% reduction in mortality. Aspirin should be considered an essential drug in the acute treatment of AMI, whether or not thrombolytic therapy is used. We recommend that the patient chew 160 mg of aspirin for rapid onset of effect (Table 2, next page). Aspirin should be continued long term because of its secondary prevention benefits.

Nitrates are vasodilators that reduce cardiac preload, and to a lesser extent, afterload. This lowers cardiac volume and reduces wall stress, decreasing myocardial oxygen consumption. Nitrates also dilate the coronary arteries and improve flow through collateral vessels in the myocardium.[20]

Analysis of pooled data shows that the use of nitrates may reduce mortality by 20%-30%.[21] However, the ISIS-4 trial, the largest trial of *oral* nitrates, did not demonstrate a benefit over placebo. Patients were not harmed by treatment and a subset of subjects who received intravenous nitroglycerin within 24 hours of admission did benefit. The final results of the trial have not been published, so we cannot make final conclusions about the use of nitrates.

Intravenous beta-adrenergic blockers can reduce both short- and long-term

Table 1. Contraindications to thrombolysis

Absolute	Relative
Active bleeding	Advanced age (>75)
History of cerebralvascular event (ia, any cva < two months, any hemorrhagic cva)	Puncture of a non-compressible blood vessel (< 10 days)
Recent intracranial or spinal surgery or trauma (< two months)	Uncontrolled hypertension (sys. BP > 180 mm HG or dys. > 110 mmHG)
Intracranial disease (i.e. neoplasm, aneurysm)	Diabetic hemorrhagic ophthalmic conditions
Severe uncontrolled hypertension (sys. BP > 180 mmHG or dia. BP > 110 mm HG)	Anticoagulated (prothrombin time > 15 sec.)
Known bleeding diathesis	Advanced liver or kidney disease
Recent trauma, major surgery, or biopsy at a non-compressible site (< 10 days)	Active peptic ulcer disease
Pericarditis	Left ventricular thrombus
Known or suspected pregnancy	Infectious endocarditis
	Remote embolic or thrombotic CVA or TIA events*

*There is some controversy about whether CVA and TIA should be an absolute contraindication. Remote embolic or thrombotic CVA events (> six months) are thought to be at a lower bleeding risk compared to recent events within the past six months. It is the window between two and six months after a CVA that safety has not been clarified. Patients with a remote history are safely being treated with thrombolytics at some centers.

Table 2. Treatment protocols for adjunctive therapy

Aspirin: 160 mg PO immediately, then 160-325 mg/day (The patient should chew the ASA; two baby aspirin may be preferable due to taste.)

Intravenous beta blockade (if no contraindication):
Bolus—Metoprolol 5 mg IV over two minutes, wait five minutes and repeat for a total of three doses.

Maintenence—After IV bolus, wait 10 minutes, and begin atenolol 50 mg every 12 hours for first 48 hours, then 50 mg PO each day.

mortality in patients with AMI. Nearly 30 randomized studies, involving more than 27,000 patients, demonstrate a 14% reduction in mortality from acute beta blockade during AMI (3.7% mortality vs 4.3%).[22] The ISIS-1 trial, in which 16,000 AMI patients randomly received placebo or intravenous atenolol, showed a 15% reduction in seven-day mortality, (3.9% mortality vs 4.6%; $p < 0.05$).[23] The benefit was seen within 24 hours of treatment and subsequently remained constant; this early benefit may be the result of a lower incidence of cardiac rupture. The Metoprolol In Acute Myocardial Infarction (MIAMI) trial found a 13% reduction in mortality in all patients given intravenous metoprolol ($p=0.29$),[34] but there was a significant 29% reduction of mortality ($p=0.033$) in patients at "high risk": those over age 60, hypertension, diabetes, history of heart failure, prior infarction or angina, or diuretic use.[23] The greatest reduction in infarct size and mortality was seen in those treated within eight hours of their initial symptoms. The TIMI-II trial of 3,200 patients showed that early rather than delayed use of beta blockers decreased recurrent ischemic events by 37% and reinfarction by 50%.[25]

Beta blockade benefit is thought to derive from reduced myocardial oxygen demand caused by decreased contractility and myocardial wall tension. Beta blockade lowers heart rate and blood pressure, which decreases the overall workload of the heart. With a slower heart rate, diastole is prolonged and coronary blood flow improved. A beneficial effect has been shown with both cardioselective and non-selective beta blockers, but we recommend, given a choice, that those with intrinsic sympathomimetic activity, such as Pindolol, be avoided. Commonly used agents are propranolol, metoprolol, and atenolol.

Generally accepted contraindications to early beta blocker therapy include: 1) heart rate <50 beats/minute; 2) systolic blood pressure <100 mm Hg; 3) moderate to severe left ventricular dysfunction; 4) peripheral hypoperfusion; 5) Type I and II second-degree AV block; 6) severe chronic obstructive pulmonary disease; and 7) congestive heart failure (crackles over more than one-third of the lung fields). Relative contraindications include: 1) history of asthma; 2) severe peripheral vascular disease; 3) concurrent use of calcium channel blockers if significant bradycardia or hypotension exist; 4) "brittle" insulin-dependent diabetes mellitus; and 5) first-degree AV block.

The recommended doses of beta blocker are significant and the potential risks must be recognized. Only a subset of AMI patients are good candidates for beta blocker therapy. The TIMI-II trial excluded more than half its AMI patients due to contraindications. We recommend intravenous metoprolol (but propranolol or atenolol are suitable alternatives) to be given per protocol for patients with AMI (Table 2, above). It should be given early, preferably within eight hours of onset of symptoms. It may be of particular benefit to patients who have multiple risk factors for poor prognosis.

Beta blockade is especially helpful in patients who are tachycardic or hypertensive but do not have congestive heart failure or low cardiac output. The decision to use a beta blocker must be left to the clinical judgment of the treating physician.

Calcium channel blockers have been used extensively in patients with chronic and unstable angina to reduce coronary spasm, improve collateral flow, lower blood pressure, and decrease myocardial contractility. In addition, verapamil and diltiazem control the ventricular response to supraventricular tachyarrhythmias. Despite these properties, no clear benefit of calcium channel antagonists has been shown in 21 trials evaluating 18,000 patients with AMI.[26,27] One indication for use of verapamil is to control heart rate in atrial fibrillation during an AMI.

Nifedipine has shown either no benefit or a trend toward increased mortality and morbidity.[27] The Secondary Prevention of Reinfarction Israeli Nifedipine (SPRINT-2) trial was stopped early due to a disturbing increase in mortality among patients receiving nifedipine.[28]

Angiotensin converting enzyme (ACE) inhibitors. The two largest trials of ACE inhibitors to date, the Survival and Ventricular Enlargement Trial (SAVE)[29] and the Cooperative New Scandinavian Enalapril Survival Study (CONSENSUS-II)[30] found different, but not necessarily contradictory, results from the use of ACE inhibitors during AMI. The SAVE trial gave 2,231 survivors of AMI who had asymptomatic left ventricular dysfunction (left ventricular ejection fraction <40%) either captopril or placebo for an average of 42 months. Those taking captopril had a decreased mortality (20% vs 25%; $p=0.019$). The CONSENSUS-II trial gave intravenous enalapril or placebo to 6090 patients within 24 hours of presentation for AMI and continued treatment for six months. There was no significant difference in mortality between the groups (11.0% vs 10.2%; $p=0.26$).

The important differences in study design between SAVE and CONSENSUS-II may give clues about which patients are likely to benefit from post-AMI ACE inhibitors. The SAVE investigators studied only patients with known (albeit asymptomatic) left ventricular dysfunction who had survived the initial infarction period. They followed patients for an average of 3.5 years. The CONSEN-

SUS-II investigators treated patients acutely, did not limit enrollment to those with left ventricular dysfunction, and followed patients for only six months. The mortality benefit seen in the SAVE trial did not become statistically significant until after six months!

There are no data to support early ACE inhibition in all patients presenting with AMI. ACE inhibitors should be used in patients whose ejection fraction is <40% and can be started 48 hours after AMI or just before discharge.

Intravenous magnesium. Magnesium inhibits calcium influx into ischemic myocardial cells and enhances regeneration of magnesium-bound ATP, which is rapidly depleted in ischemic myocardium. Magnesium may also act as an antiarrhythmic. The two most influential reports on the effect of intravenous magnesium in AMI are the Second Leicester Intravenous Magnesium Intervention trial [LIMIT-2],[31] and a meta-analysis of seven small randomized trials.[32] Both suggest reduced cardiac mortality (30% to 40% lower mortality) when magnesium is given during the first 48 hours after AMI. The benefit of intravenous magnesium remains uncertain, because the ISIS-4 study of more than 50,000 patients found no clear benefit over placebo. Since the risks and costs of therapy are minimal, magnesium may be recommended in some patients such as those with complex ventricular arrhythmias or with documented hypomagnesemia.

Prophylactic lidocaine. Intravenous and intramuscular lidocaine used to be given prophylactically (not for documented, significant arrhythmia) to patients with AMI. The idea was to reduce the incidence of life-threatening ventricular dysrhythmias (ventricular fibrillation or ventricular tachycardia) during the first 24 to 48 hours following AMI.

Of 14 randomized trials, only one showed a significant reduction in ventricular fibrillation and none demonstrated a mortality benefit, but all trials were small in size. An overview of the trials, although limited by the unavailability of some data, indicates a 33% reduction in ventricular fibrillation, but a 50% *increase* in fatal asystole.[33,34] A trend toward *increased* overall mortality was not statistically significant. The routine use of prophylactic lidocaine in AMI is not recommended at this time. Intravenous lidocaine *is* appropriate in patients with complex ventricular arrhythmias (three or more consecutive ventricular beats at a rate greater than 120 beats per minute, ventricular fibrillation, or frequent multiformed PVCs) during the acute infarction phase.

Heparin. It has been hard to decide whether heparin has an effect on mortality in AMI patients. When 600 patients were randomized to heparin versus no heparin in the pilot study of the ISIS-2 trial, there was trend toward risk reduction (27% vs 12%).[35] Heparin caused a two-fold increase in bleeding, but the data suggest that bolus intravenous heparin given early in the evolution of AMI may be a safe and effective alternative to thrombolytic therapy.

The post-infarction use of heparin is more clearly beneficial. AMI patients run the risk of further coronary thrombosis, as well as the risk of developing a ventricular mural thrombus during the five days after a large infarct, especially an anterior infarct. The SCATI group randomized 360 AMI patients to receive 12,500 units of heparin subcutaneously twice daily; 351 got no heparin.[36] There was no difference in reinfarction rate, but mortality was significantly lower (21/360 vs 35/351; p<0.03).

Heparin is an essential adjunct to thrombolytic therapy with rt-PA because it leads to higher patency rates.[37,38] Bleich found that heparin increased the patency rate after rt-PA from 43% to 70%.[38] The Hart trial found similar results, emphasizing the importance of adequate heparinization to early patency.[38] Hisa showed that patency correlated with prolongation of the activated partial prothrombin time (aPTT) in rt-PA-treated patients. When aPTT was <45 seconds patency, was 45%; when >45 seconds, 88%; and when >60 seconds, it was 95%. This suggests that the higher the aPTT during the first 12 hours, the higher the patency rate, and that inadequate heparinization can lead to lower patency rates in patients treated with rt-PA.

With streptokinase, the early re-occlusion rate is much lower. The GUSTO trial showed 90-minute patency of 56% compared to 81% for rt-PA,[3] but over the subsequent 24 hours after streptokinase the patency rate increased. This may reflect the longer half-life of streptokinase. In any case, the role of intravenous heparin in patients receiving streptokinase is not clear. The GUSTO trial found no additional benefit of intravenous heparin compared to subcutaneous heparin. Therefore, patients receiving

Table 3. Heparin dosing

Loading dose: 75 units/kg rounded to the nearest 100 units

Initial maintenance infusion: 13 units/kg/hour rounded to the nearest 100 units/hour

Maintenance infusion adjustment: Measure aPTT six hours after initiating the maintenance infusion and adjust as follows[1]

aPTT (sec)	bolus (units)	stop infusion (minutes)	rate change (units/hour)	repeat aPTT
< 40	5,000	0	+200	6h
40-54	0	0	+100	6h
55-95	0	0	0	next a.m.
96-120	0	30	-100	6h
>120	0	60	-200	6h

Additional routine monitoring: hematocrit (daily), platelet count (every three days), guaiac all stools, visual check for hematuria

[1] Adapted from Arch Intern Med 1991;151:333

streptokinase, should get intravenous heparin only if they have a large anteroseptal infarction, recurrent ischemia, and other conditions which warrant higher and more constant aPTTs.

It is important to remember that the adequacy of heparinization depends on appropriate dosing. A study from our institution found that over 25% of patients' aPTT values were not within the therapeutic range during the first 24 hours of intravenous heparin therapy. Now we use a modified, weight-based heparin dosing schedule to minimize inadequate dosing in patients getting intravenous heparin (Table 3, previous page).[39] Adherence to the dosing schedule reduced by 65% the number of patients who were not in the therapeutic range at 24 hours.

Heparin doses should be changed during the first 12 hours after thrombolysis only to increase a low aPTT value, *not* to decrease a high value (which may reflect the effects of thrombolysis). After 12 hours, the adjustments indicated by the dosing schedule should be followed.

Conclusion

Clinical guidelines are an approach to improved management of acute myocardial infarction. Guidelines allow us to integrate existing data with personal experience in a rational way that provides a high standard of care. Modern understanding of the pathophysiology of myocardial infarction has led to better treatment and technology, but these have increased the complexity of treatment. Complexity increases variation in physician practice, which may put patients at risk for poor outcomes. Because acute myocardial infarction is a common condition with significant morbidity and mortality, we developed clinical guidelines to that overcome this complexity to improve the care of AMI.

It is important to recognize that our guidelines pertain only to the initial care of patients with an AMI. We have not compared our guidelines to others; they represent only the approach of one institution, based on evidence from the literature and our clinical experience. Nevertheless, guidelines like ours do improve clinical outcome. Guidelines also provide a powerful educational tool, helping to establish standards of care and to clarify areas of controversy. We share our guidelines for AMI here because of our local success and to illustrate the teaching potential of guidelines. We recommend this approach to improving the quality of care for the acute myocardial infarction patient. ❑

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The Clinical Significance of Spontaneous Pneumobilia

Maher A. Baz, MD, and Ala I. Sharara, MD

Pneumobilia—air in the biliary tree—may occur after medical procedures or spontaneously. Iatrogenic pneumobilia occurs in patients with surgically created biliary-enteric anastomoses, or after endoscopic retrograde cholangiopancreatography (ERCP) or percutaneous transhepatic cholangiography. Before we began using modern instrumental techniques for diagnosis and therapy of biliary disorders (and thereby introducing air into the biliary tree), pneumobilia usually meant chronic—and serious—biliary or peptic disease.

In this report, we describe a patient with spontaneous pneumobilia and discuss the clinical significance, pathophysiology, manifestations, and approach to its diagnosis.

Our Patient

A 76-year-old white male presented to the emergency room for evaluation of a one-week history of dull, ill-defined right lower quadrant abdominal pain. The pain was not associated with meals and was localized, non-radiating, and unrelieved by bowel movements. Review of systems was otherwise unremarkable. A plain abdominal film showed intrabiliary air. He was admitted for further evaluation and management.

Past medical history was significant for emphysematous cholecystitis (three years ago) for which he underwent open cholecystectomy. An intraoperative cholangiogram was normal, so common bile duct (CBD) exploration was not performed.

Physical exam revealed mild suprapubic tenderness on palpation but no right upper quadrant tenderness. Stools were brown and negative on testing for occult blood. No hematologic or biochemical abnormalities were present. In particular, the white cell count, liver function tests (bilirubin, alkaline phosphatase, transaminases), and amylase were normal.

An upper gastrointestinal contrast series was normal except for free reflux of barium through the ampulla of Vater with opacification of the biliary tree, which emptied rapidly. No fistulae, diverticula, or ulcers were seen. Ultrasonography showed a normal CBD diameter, air in the bile ducts, and a normal-appearing liver. The patient's abdominal pain resolved spontaneously after three days without fever, jaundice, or right upper quadrant pain. He was discharged with no recurrence of symptoms in the subsequent six months.

Pathophysiology of Spontaneous Pneumobilia

Pneumobilia is associated with several diseases (Table 1, below). The most common causes of spontaneous pneumobilia are biliary-enteric fistulae and incompetence of the sphincter of Oddi; less common are emphysematous cholecystitis, necrotic liver abscesses and neoplasms.[1,2] Before recent advances in endoscopic, surgical, and radiologic diagnoses allowed identification of other causes, biliary-enteric fistulae accounted for about 90% of documented cases of spontaneous pneumobilia.[1] Spontaneous internal biliary fistulae rarely develop in the absence of cholecystitis, gallstones, neoplasm, or peptic ulcer disease.

Biliary-enteric fistulae in-

Table 1. Causes of spontaneous pneumobilia

- Biliary-enteric fistulae
- Bronchopleurobiliary fistulae
- Incompetence of the sphincter of Oddi
- Emphysematous cholecystitis
- Liver abscess
- Small bowel obstruction
- Intestinal pseudo-obstruction
- Calculi (gas-containing gallstone)
- Congenital anomalies

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clude cholecysto-duodenal fistulae (which account for 70% of cases), cholecysto-colic (14%), cholecysto-gastric (6%), choledocho-duodenal (4%), and others (6%).[1,3] Cholecysto-enteric fistulae arise because of biliary tract disease and are associated with gallstones in approximately 90% of the cases (the gallstone erodes into an adjacent viscus, usually the duodenum or colon). Repetitive obstruction of the ampulla of the gallbladder or cystic duct by stones sometimes causes ischemic necrosis of the gallbladder wall leading to biliary-intestinal communication. Rare causes of fistulae between the intestine and the gallbladder include peptic ulcers and granulomatous diseases or cancer of the stomach, duodenum, or colon.

Fistulae involving communication of bile duct and intestine are much less common than those involving the gallbladder itself.[3] In Western countries, almost all spontaneous choledocho-enteric fistulae are caused by recurring or chronic peptic ulcers, 80% of which involve the duodenum.[4] However, in Asian countries where pigment gallstones lead to a high incidence of choledocholithiasis, choledocho-enteric fistulae are common (they form in up to 15% of Asian patients with common bile duct stones).[5] Very rarely choledocho-enteric fistulae arise from trauma or malignancy.

Bronchopleurobiliary fistulae can lead to spontaneous pneumobilia and have been described after thoracoabdominal trauma,[6] inflammatory lesions of the lower lobe of the right lung,[7] and with migration of intrahepatic biliary stent.[8] Congenital malformations arising from fusion of an anomalous bronchial bud and an anomalous bile duct, or duplication of the gastrointestinal tract can also cause broncho-pleurobiliary fistulae,[9] as can the hepatic and subphrenic abscesses of amebiasis and hydatid disease, or even obstruction of the bile ducts.

In 1954, Scott et al reported that approximately 14% of x-rays that showed barium or air in the biliary tree were a result of reflux through the papilla of Vater.[10] In this era of modern medicine, spontaneous or iatrogenic incompetence of the sphincter of Oddi accounts for an increasing number of cases of pneumobilia. Conditions that lead to an incompetent sphincter include disturbed innervation of the sphincter, adhesions that produce traction on the sphincter, ampullary tumors, intraduodenal abscesses, and fibrosing chronic pancreatitis. In addition, high pressure in the small bowel (for example, secondary to gallstone ileus or proximal small bowel obstruction[11]) can result in marked antiperistalsis of the duodenum, sphincteric incompetence, and duodenobiliary reflux. Pneumobilia has also been described in patients with chronic intestinal pseudo-obstruction,[12] but overall the most common cause of sphincteric incompetence is passage of a common duct stone, a condition demonstrated experimentally by Williams and Busch in 1907.[13] It is not clear whether the sphincteric incompetence that follows stone passage is transient or permanent.

Clinical Manifestations

Not only is there a wide differential diagnosis of causes of spontaneous pneumobilia, but the clinical spectrum of the condition itself is highly variable and often non-specific. A detailed history, careful physical examination, and high level of suspicion by the clinician may help, but the diagnosis of pneumobilia is often made first by the radiologist. In most cases, unanticipated x-ray shadows are found in association with infection, calculi, neoplasia, or trauma to the liver or biliary system.[14]

The clinical presentation of pneumobilia may include signs and symptoms of biliary disease or chronic peptic ulcer. Ascending cholangitis, gallstone ileus, or gastrointestinal bleeding following pressure necrosis by an impacted calculus have all been described. Cholecystocolic fistulae may cause significant diarrhea, dehydration, and hyponatremia because of the cathartic effect of bile in the colon (choleretic diarrhea). Chest pain, dyspnea, bile expectoration (bilioptysis), right lower lobe pneumonia, and a right-sided pleural effusion should suggest the possibility of a bronchopleurobiliary fistula.

Diagnosis

Biliary fistulae are more common than we think, although the finding often is incidental. Before the advent of modern radiographic techniques, the diagnosis of internal biliary fistulae was usually made at the time of surgery. The lack of characteristic signs or symptoms renders the clinical (preoperative) diagnosis exceedingly difficult.

Plain radiographs of the abdomen should be carefully examined for the presence of air in the biliary tree. Except when the sphincter of Oddi is incompetent, the presence of

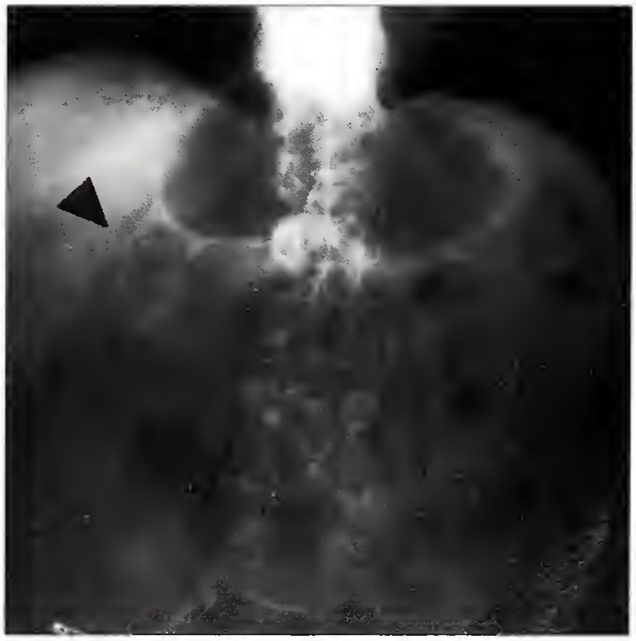

Fig 1: Plain radiograph of the abdomen showing the saber sign—air in the common bile duct and left main hepatic duct (at arrow).

air in the biliary tree is strong evidence of an abnormal communication, usually between the biliary tree and the gastrointestinal tract. If the patient has not had surgery, it suggests an internal biliary fistula.

The classical radiographic appearance of gas in the biliary tract is a Y-shaped translucent shadow in the right upper quadrant on an abdominal plain film. This corresponds to the location of the right and left main hepatic ducts and common bile duct. Also seen is the so-called "saber sign" (Fig. 1, previous page) created by air in the common bile duct and left hepatic duct.[15] This must always be differentiated from gas in the portal vein (which indicates bowel wall ischemia or infarction).

Barium studies may demonstrate reflux of contrast medium through the ampulla of Vater or through a fistulous communication between the gastrointestinal and biliary tracts. Ultrasonography or computerized tomography are more sensitive than plain radiographs for detecting air in the biliary tract. ERCP can accurately delineate the anatomy of the biliary tree and identify abnormal fistulous communications. It has even been used to treat biliary fistulae, mostly of the biliary-cutaneous type, and postoperative internal and external bile leaks.

Conclusion

Pneumobilia may be a clue to potentially life-threatening conditions, such as emphysematous cholecystitis or ascending cholangitis complicating a spontaneous cholecysto-colic fistula. On the other hand, it may indicate a benign condition such as incompetence of the sphincter of Oddi. Regardless, air in the biliary tract that cannot be accounted for on iatrogenic grounds calls for immediate attempts at diagnosis (and treatment if an underlying problem is discovered). Collaboration by gastroenterologists, surgeons, and radiologists is likely to be the most successful approach. ❑

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WHAT IS MEDPAC?........ MEDPAC is a voluntary, non-profit, unincorporated committee organized to direct financial support to State and Federal political candidates in North Carolina. MEDPAC membership is comprised of individual physicians and physician spouses who are dedicated to preserving quality health care in North Carolina and throughout the United States. The committee is comprised of two branches, MEDPAC-State and MEDPAC-Federal, which together constitute the political action arm of the North Carolina Medical Society. MEDPAC activities are funded by voluntary contributions from its members.

WHY CONTRIBUTE?...... It is critical that MEDPAC financially support candidates for Congress and the General Assembly who truly understand the relevant issues affecting health care today. MEDPAC allows us to express our support with one unified voice.

WHO DECIDES? .... Physicians decide. MEDPAC is not affiliated with any political party. Congressional and legislative candidates' positions on medical and health care issues are carefully scrutinized by physicians serving on the MEDPAC Board of Directors before support is given. These combined efforts to elect candidates who share our interest in quality medical care provide a stronger voice for medicine's concerns than individual contributions.

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SUCCESS OF THE NORTH CAROLINA MEDICAL SOCIETY IN THE LEGISLATURE REQUIRES A STRONG POLITICAL ACTION COMMITTEE. SUPPORT OUR PROFESSION!

Three Rear Ends on the Beach

Debating the Ethics of Medical Advertising

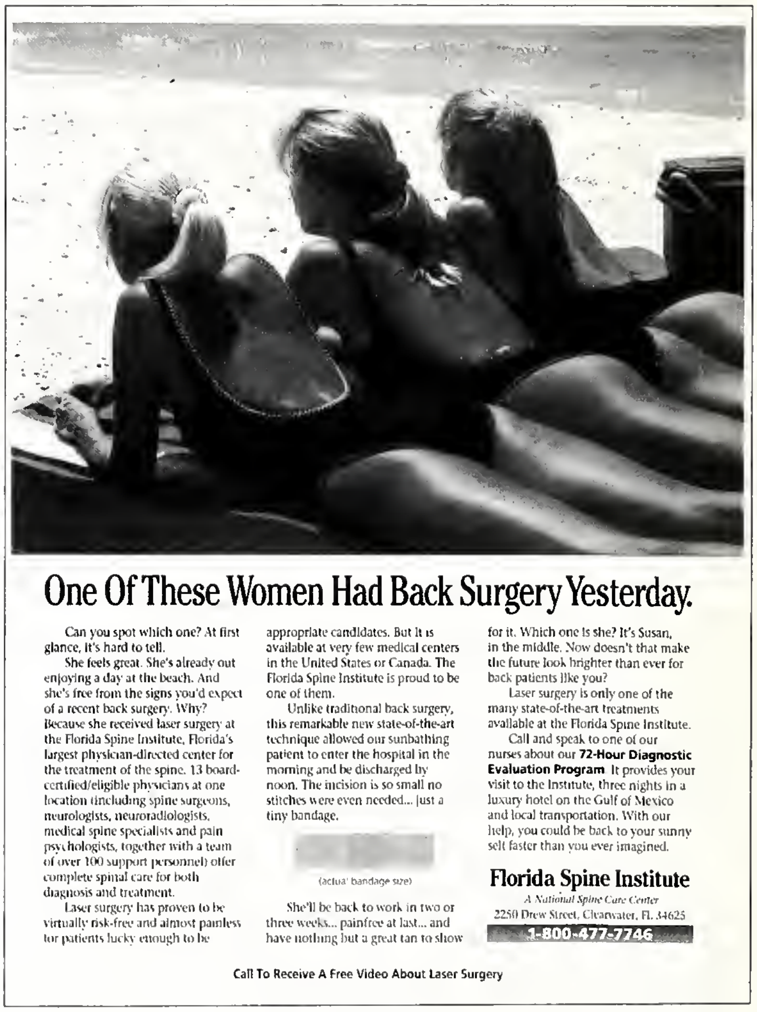
Edward C. Halperin, MD, Deputy Editor

I found it in the seat pocket on the airplane. There they were, three blond women with their backsides prominently displayed on a beach blanket. The advertisement (pictured below) read, in bold print: **“One of these women had back surgery yesterday.”** If you look really close, the middle blond has a tiny bandage over her lumbar spine.

The advertisement is enticing. It invites you to “spot” which one? “At first glance it’s hard to tell. She feels great. She is already out enjoying the beach. And she’s free from the signs you’d expect of a recent back surgery.” Why? “Because she received laser surgery at….” The advertisement goes on to make the pitch for a group of “board certified/eligible…spine surgeons, neurologists, neuroradiologists, medical spine specialists, and pain psychologists” who offer “complete spinal care for both diagnosis and treatment.” Furthermore—the advertisement claims—“Laser surgery has proven to be virtually risk-free and almost painless for patients lucky enough to be appropriate candidates.” Readers are invited to call and speak to “one of our nurses about our 72-hour diagnostic evaluation program.” It includes, in addition to a visit to the institute, local transportation and an optional three-night stay in a luxury hotel on the Gulf of Mexico.

I figure a full-page ad in the American Airlines seat pocket magazine, *American Way*, involves no small piece of change. Later I found the same advertisement in a Delta Airline seat pocket magazine.

Well, I bit. I invited a group of neurosurgeons, orthopedic surgeons, and neurologists to comment on the advertisement. I asked whether they thought it was ethical to advertise at all. Was it proper to tout “laser surgery” as “virtually risk-free and almost painless” for patients lucky enough to be candidates? Is it such a “breakthrough” that it warrants advertising? The responses to my queries follow. We begin with one of the physicians who ran the advertisement; the others follow alphabetically. ❑



One Of These Women Had Back Surgery Yesterday.

Can you spot which one? At first glance, it's hard to tell.

She feels great. She's already out enjoying a day at the beach. And she's free from the signs you'd expect of a recent back surgery. Why? Because she received laser surgery at the Florida Spine Institute, Florida's largest physician-directed center for the treatment of the spine. 13 board-certified/eligible physicians at one location (including spine surgeons, neurologists, neuroradiologists, medical spine specialists and pain psychologists, together with a team of over 100 support personnel) offer complete spinal care for both diagnosis and treatment.

Laser surgery has proven to be virtually risk-free and almost painless for patients lucky enough to be appropriate candidates. But it is available at very few medical centers in the United States or Canada. The Florida Spine Institute is proud to be one of them.

Unlike traditional back surgery, this remarkable new state-of-the-art technique allowed our sunbathing patient to enter the hospital in the morning and be discharged by noon. The incision is so small no stitches were even needed... just a tiny bandage.

(actual bandage size)

She'll be back to work in two or three weeks... painfree at last... and have nothing but a great tan to show for it. Which one is she? It's Susan, in the middle. Now doesn't that make the future look brighter than ever for back patients like you?

Laser surgery is only one of the many state-of-the-art treatments available at the Florida Spine Institute.

Call and speak to one of our nurses about our **72-Hour Diagnostic Evaluation Program**. It provides your visit to the Institute, three nights in a luxury hotel on the Gulf of Mexico and local transportation. With our help, you could be back to your sunny self faster than you ever imagined.

Florida Spine Institute
A National Spine Care Center
2250 Drew Street, Clearwater, Fl. 34625
1-800-477-7746

Call To Receive A Free Video About Laser Surgery

Dr. Halperin is Deputy Editor of the *Journal* and Professor and Vice Chair, Department of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710. Advertisement reproduced with permission of the Florida Spine Institute.

Douglas J. Weiland, MD, *Director, Florida Spine Institute, Clearwater, Florida*

I am certainly happy to comment in response to your questions about the ethics of advertising in medicine. First I would point out that the American Medical Association does provide specific guidelines, and we have clearly followed them. You may believe that advertising in medicine is unethical, but in fact we strongly take the position that our advertising is a form of patient education and the public has the right to know what options are available to them.

Specifically, we have a near-unique practice situation that offers a true service to spine patients. In this day and age of corporate medicine one cannot take traditional routes in combatting the HMO, PPO, and managed care networks. We cannot operate solely on the "word of mouth" basis of traditional medicine. We strongly feel that it is in the public's best interest to be made aware of what options are available.

The Florida Spine Institute is unique in that, on one campus, in one institute devoted totally to spine care, we bring together physiatry (physical medicine and rehabilitation), neurology, neuroradiology, psychology, physical therapy, and orthopedic spine surgery. By joining these various specialties in one location we can provide total spine care, diagnostic evaluation, and treatment in the most efficient, cost-effective manner possible.

Regarding the issue of laser surgery, please note that laser surgery is new, but published articles clearly recognize and support the use of lasers in spinal surgery. I include references that indicate a 71% to 93% success rate and a minimal complication rate.[1-10] In our experience, the option of laser surgery is rarely discussed with patients by spine surgeons; our goal is to bring this issue and option to the forefront with patients. We believe we have adequately achieved that goal.

We believe that our advertising is both tasteful and ethical. We feel that we have not violated any medical ethics and that we have achieved our goal of stimulating discussion of this issue among the general population. At this time, we do not use any advertising agencies. ❑

References

1 Davis J. Early experience with laser disc decompression—a percutaneous method. J Florida Med Assoc 1992;79:37-9.

2 Mathews H, Leibler W, Brown C, DiMartino P, Long B. Laser disc decompression: a retrospective review. International Intradiscal Society, Annual Meeting, Phoenix, AZ, 1993.

3 Ohnmeiss D, Guyer R, Hochschuler S. Laser disc decompression. Spine 1994;19:2054-9.

4 Laser for lumbar radiculopathy shows promise. Orthopedics Today 1994;5:12-3.

5 Casper D. Clinical results of holmium: YAG laser assisted disc decompression utilizing the side-firing fiber. International Intradiscal Society, annual meeting, 1994.

6 Sherk H, Black J, Prodoehl J, Cummings R. Lasers in orthopedic surgery—laser diskectomy. Orthopedics 1993;16:573-6.

7 Yeung AT. Considerations for use of the KTP laser for disc decompression and ablation. Spine: State of the Art Revs 1993;7(1).

8 Bonati A. Arthroscopic lumbar laser diskectomy. International Intradiscal Society, annual meeting, 1994.

9 Sachs BL, Leone A. Endoscopic percutaneous holmium 2.1 laser lumbar disc decompression: a preliminary prospective clinical report. International Intradiscal Society, annual meeting, 1994.

10 Ditsworth DA. Percutaneous discectomy in the older patient (improved results with nucleotome/laser enhancement). International Intradiscal Society, annual meeting, 1994.

Dennis E. Bullard, MD, *Raleigh Neurosurgical Clinic, Raleigh*

I have problems with this specific type of advertising. In general, the public is not able to interpret the data given to them in this form. For example, the specific surgical procedure mentioned is appropriate in only a minuscule number of patients, and its overall success rate is rather low.

The report card system for evaluating spine procedures gives laser surgery a rating of 2; other, somewhat more invasive procedures, are significantly more successful with ratings as high as 8 and 9 out of 10. Laser surgery is not "virtually risk-free," and certainly is not painless.

The advertisement is not an honest representation of the options available to a patient. I think that the associated inducements, including a three-night stay in a luxury hotel on the Gulf of Mexico, should be used to sell condominiums and beachfront property, not the treatment of medical problems. ❑

John Glasson, MD, *Orthopedic Surgeon, Durham, Past President, North Carolina Medical Society, and Chair, American Medical Association Council on Ethical and Judicial Affairs*

The AMA Council on Ethical and Judicial Affairs has commented, at length, on confidentiality, advertising, and communications media relations. The official policy of the AMA notes that: "There are no restrictions on advertising by physicians except those that can be specifically justified to protect the public from deceptive practices...provided that the communication shall not be misleading because of the omission of necessary material information, shall not contain any false or misleading statement, or shall not otherwise operative to deceive....Aggressive, high-pressure advertising and publicity should be avoided if they create unjustified medical expectations or are accompanied by deceptive claims. The key issue, however is whether advertising or publicity, regardless of format or content, is true and not materially misleading....Nothing in this opinion is intended to discourage or to limit advertising and representations which are not false or deceptive....Statements relating to the quality of medical services can raise concerns because they are extremely difficult, if not impossible, to verify or measure by objective standards....Because physicians have an ethical obligation to share medical advances, it is unlikely that a physician will have a truly exclusive or unique skill or remedy. Claims that imply such a skill or remedy therefore can be deceptive. Statements that a physician has an exclusive or unique skill or remedy in a particular geographic area, if true, however, are permissible....Similarly, a statement that a physician has cured or successfully treated a large number of cases involving a particular serious ailment is deceptive if it implies a certainty of result and creates unjustified and misleading expectations in prospective patients."

The problems posed by the advertisement include the following: It may be misleading and deceptive by giving false expectations about the postoperative course and results. The advertisement indicates no probability of complications, a possibility with any surgery. The advertisement does not make clear what board certification the "spine surgeons" have. The advertisement leaves unclear the details of the "72-hour diagnostic evaluation program" including the question of who pays for the three-day stay in the "luxury hotel." The cosmetic perfection in the form of a small back incision might not hold if there is a postoperative infection or if there is excess bleeding, requiring a large incision to control it. ❑

William J. Richardson, MD, Assistant Professor, Division of Orthopedic Surgery, Duke University Medical Center, Durham

I think that it is ethically inappropriate to be advertising to the public in this manner. I believe it is okay to send brochures to colleagues explaining services that we offer that may be new and unique, but it is inappropriate to tout such services in the press.

I certainly feel that it is an exaggeration to say that laser surgery is virtually risk-free and almost painless. The degree of pain depends on what tissues are lasered and how the laser gets to the spot where its energy is dissipated. Typically the procedure is done under a local anesthesia and requires inserting a needle through the back, past the nerve root into the disc. This is similar to the approach used for discograms with the old chymopapain injection. Local anesthetics used to anesthetize the soft tissue can irritate the nerve root or the outer annular fibers. Once the needle is within the disc, the laser fibers pass through the needle and the energy is dissipated in the nucleus pulposus. The nucleus has no pain fibers and this portion of the procedure should be painless.

Risks involved include infection (usually about one out of every 1,000 to 3,000 patients), a risk of nerve damage or dural leak from poor placement of the needle, or having the needle pull partially out while the laser fiber is in position. These risks are small, but certainly not zero. The amount of pain varies according to the patient and person doing the procedure. Large studies show good results from the surgery in about 70% of cases—the same as the results of non-operative treatment of disc herniation.

I think the potential for abuse is great. Both patient and physician may look at this as non-surgery and therefore "why not give it a shot." I know of doctors who will laser two and three discs at a time on the same patient (surgical intervention for multiple disc herniations is virtually unheard of). Charges for the procedure are often the same as and sometimes even greater than those for open laminectomy.

Minimally invasive procedures are becoming popular throughout medicine. This is true for laparoscopic general surgery and gynecological surgery as well as spinal surgery. No long-term studies are currently available in the area of spinal surgery, and it remains to be seen what the long-term effect is going to be. Unfortunately I think a number of physicians use it as a gimmick to promote business.

The advertisement in question certainly does suggest gender bias and is particularly offensive. If offers a three-night stay in a luxury hotel while you are evaluated and have your surgery. I am surprised it does not recommend that you refrain from food or drink the night prior to your first visit to the office or offer a toaster oven if you respond promptly. This is certainly not the way I would like to see medicine proceed. ❑

Marvin P. Rozear, MD, Associate Professor, Division of Neurology, Duke University Medical Center

I had heard that this kind of advertising has been in vogue on the West Coast for years, and it looks like it is getting a lot closer to home now. My first reaction to this advertisement, and the people who respond to it, is to recall P.T. Barnum's laws:

Barnum's first law: There's another sucker born every minute. Barnum's second law: No one ever went broke underestimating the taste of the American public.

We doctors are under a mandate to lower the cost of medical care. We have been told that the way to do this is to throw medical care open to market forces. We are also told that competition means advertising. These statements have been presented to me as axiomatic and not open to serious debate. The fact that I react negatively to this sort of thing just shows that we are way behind the times.

I think that there are two separate issues to be considered here. One (not related to advertising) is whether "laser surgery" is really a worthy treatment modality or not. It seems to me that this will be worked out in the scientific literature, in hospital privilege determinations (about what procedures can be done in which facility, etc.) and, if it is so bad and people actually get hurt by it, in the courts. In the last eventuality, the suckers (see Barnum's first law) will be remunerated for being suckers, the lawyers will make a bundle, and "laser surgery" will be replaced by another trendy modality, maybe "microchip surgery."

The other is the matter of advertising. It seems that there are two issues related to that. The first is whether the advertiser is telling the truth or not. I do not know much about laser surgery, but I am sure that if the laser surgeons' competitors (remember we are talking about competition) knew that the advertisement contained any clearcut lies, and felt strongly enough about it, they could bring some sort of action for false advertising.

The second thing, which is what gets my dander up, is the matter of taste. I'm afraid old Barnum's second law is absolutely right. It gets proven day in and day out, to the point that I'm numb. Fighting it or objecting to it seems to be about as interesting and useful as combating air pollution. Trying to figure out the ethics of advertising and air pollution and the guidelines for regulating these two endeavors is just not a fight I feel like taking on. I learned a long time ago to choose my battles and those are not among them. ❑

Continuing Medical Education

August 18-20
14th Annual East Coast Emergency Medicine Seminar
Place: Morehead City and Atlantic Beach
Credit: 10 hours Category I, ACEP
Info: Division of EMS, 919/816-2154, fax: 919/816-2655

September 8
Urinary Incontinence and Voiding Dysfunction
Place: Friday Center, UNC-Chapel Hill
Credit: 4 hours Category I, AMA
Fee: $75
Info: Registrar, UNC Office of CME, 919/962-2118

September 13
17th Annual Health Law Forum
Place: Greenville
Credit: 7 hours Category 1, AMA
Info: Office of CME, ECU, 919/816-5208

September 15-17
4th Annual UNC/Duke Rheumatology Update
Place: Friday Center, UNC-Chapel Hill
Credit: 10 hours Category 1, AMA
Fee: $250
Info: Registrar, UNC Office of CME, CB# 7000,
231 MacNider Bldg., Chapel Hill 27599-7000,
919/962-2118, fax: 919/962-1664

September 16
9th Annual Duke Glaucoma Symposium
Place: Washington Duke Inn, Durham
Credit: Category 1, AMA, pending
Info: Dr. Bruce Shields, 800/222-9984

September 21-23
2nd Annual Multidisciplinary Cardiovascular Conference: Shaping the Future—Innovations in Technology, Quality, and Caring
Place: Duke University Medical Center, Durham
Info: Janet Apter, RN, MSN, Box 3883, DUMC,
Durham 27710, 919/684-4293

September 21-24
Coastal Medical Retreat and 12th Aesculapian Sports Classic
Place: Sea Trail Resort, Sunset Beach
Credit: 9 hours Category 1, AMA
Info: Beth Mixon, Coastal AHEC, 910/343-0161 ext. 312

September 28-30
5th Annual Physician Assistant Satellite Comprehensive Review
Place: Winston-Salem
Credit: 18 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450
or 800/277-7654

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New Members

John Robert Franks (PHYS ASST), 206 Camellia Drive, Goldsboro 27530
David Chester Newbrough (PHYS ASST), P.O. Box 2503, Elizabeth City 27909
Sean Ming-Yuan Wu (STU), 1108 Clifford Drive, Durham 27704
Richard S. Zeri (RES), Dept. of Surgery, Pitt County Memorial Hosp., Greenville 27858

Buncombe
Adrian David Sandler (PD), CCDR, Thoms Rehab., P.O. Box 15025, Asheville 28813

Cabarrus
Kem S. Yenal (FP), 112 Woodbrook Place, Concord 28025

Cleveland
Donald Dean Graham, Jr. (IM), 808 Schenck St., Shelby 28150

Cumberland
Thor E. Klang (C), 1314 Medical Drive, Ste. 102, Fayetteville 28304

Durham-Orange
James Philip Evans, 3116 N. Duke St., Durham 27704
David Lloyd Hill (RES), 1000 Smith Level Road, #A-11, Carrboro 27510
Robert Anthony Rosati (CD), 1821 Green St., Durham 27705
Steven Edward Wegner (PD), P.O. Box 14566, Research Triangle Park 27709

Forsyth-Stokes-Davie
Charles Lanier Flynn, 3310 Brookview Hills Blvd., #101, Winston-Salem 27103

Franklin
Gustav Crede Wilde (FP), 116 Doctors Bldg., Franklin 28734

Greater Greensboro Society of Medicine
Peter Gilbert Dalldorf (ORS), 809 Green Valley Road, Greensboro 27401
Alan Davidson, III (EM), 4103 Westmount Drive, Greensboro 27410
David Stanley Grapey (U), 301 E. Wendover Ave., Ste. 311, Greensboro 27401
Joseph Guarino (OM), 420 Gallimore Dairy Road, Greensboro 27409
William Worth Truslow (RHU), 1036 Professional Village, Greensboro 27401

High Point
Brian Andrew Farah (P), 624 Quaker Lane, A-100, High Point 27262

Lenoir-Greene
John Patrick Fogarty (PUD), Kinston Medical Specialists, Kinston 28501

Mecklenburg
Anthony Lawrence Asher (NS), 1010 Edgehill Road, North at East Morehead, Charlotte 28207
Kimberly Ann McCrea (IM), 1718 E. 4th St., Ste. 801, Charlotte 28204
Robert Michael Savin, 5934 Cabell View Court, Charlotte 28277
Carl Andre Smart (PUD), 1718 E. 4th St., Ste. 801, Charlotte 28204

New Hanover-Pender
Sam Shiesha (FP), 509 E. Fremont St., Burgaw 28425

Randolph
Timothy Joe Misenheimer (IM), 700 Sunset Ave., Asheboro 22720

Rowan
Joseph Anthony Martino (NEP), 401 Mocksville Ave., Salisbury 28144

Wake
Elizabeth Fuller (PHYS ASST), 3515 Glenwood Ave., Raleigh 27612
Tammi Williams Gregory (OBG), 4420 Lake Boone Drive, #203, Raleigh 27607

Classified Advertisements

$$$$$ FOR YOUR SERVICES: We're building a local network of physicians to service the metro and rural areas of NC/SC. We provide malpractice, compensation, and expenses. Opportunities available in Primary Care, Psychiatry, Ob/Gyn, and ER. Full-time/part-time. Interim Physicians, Kathleen Williams, 800/494-7497.

NORTH CAROLINA: General or subspecialty internist wanted to join two other internists in a rapidly growing practice. Excellent hospital, dialysis, CA treatment center, MRI, CT, cardiac cath. Located in Blue Ridge Mountains, college town, skiing, golf. Send CV to: Drs. Taylor and Sykes, 108 Doctors Drive, Boone, NC 28607. Phone 704/264-6362, fax: 704/265-4816.

PRIMARY CARE PHYSICIAN, Freestanding clinic, Urgent Care/Family Medicine: Immediate opening in the Piedmont area of North Carolina for aggressive primary care physician interested in long-term career commitment. Excellent salary, fringes, plus a progressive profit-sharing plan. Call or send CV to Dr. John Bunch, 5810 Monroe Road, Charlotte, NC 28212. Phone 704/531-7000.

Classified rates: For NCMS members: $15 for the first 25 words, 25 cents for each additional word, for non-members: $25 for the first 25 words, 25 cents for each additional word. Fax typed ad copy to: 919/286-9219.

RALEIGH PSYCHIATRIC ASSOCIATES, PA: an established, busy psychiatric practice in the Research Triangle area of North Carolina is seeking to add several psychiatrists. Along with the usual credentials of medical school and residency training, we are looking for psychiatrists who appreciate private practice; are general psychiatrists who have a specialty interest in areas such as female issues, chemical dependency, or adolescence; and who are intent on providing quality care in this present climate of managed care. Contact Raleigh Psychiatric Associates, PA, Suite 201, 3900 Browning Place, Raleigh, NC 27609-6555.

RECEIVABLES MANAGEMENT: Are you losing thousands of dollars annually in uncollected receivables? We use proven collection methods to increase your bottom line. Call Medical Reimbursement Systems at 910/632-8919 or 800/995-7756.

URGENT CARE FACILITY: with multiple locations in the Charlotte, NC, area is presently seeking EM/FP/IM/GP with a commitment to quality urgent care and industrial medicine. Stimulating, versatile, and challenging career opportunity. Established in 1979, we are a successful and rapidly expanding organization with unlimited growth potential. We offer a 40-hour work week with competitive compensation, paid malpractice, and the luxury of an independent contractor status. Please send CV to: Susan Blauvelt, P.O. Box 667967, Charlotte, NC 28266.

Continuing Medical Education

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September 29-October 1
2nd Annual Joint Meeting of the NC and SC Chapters of the American College of Cardiology
Place: Grove Park Inn, Asheville
Info: NC-ACC, 4101 Lake Boone Trail, Suite 201, Raleigh 27607

September 30-October 1
65th Meeting of the Carolina Urological Association
Place: Holiday Inn, Southern Pines
Fee: $25
Credit: 6 hours Category ICME
Info: Carolina Urological Association, P.O. Box 1036, Southern Pines 28387-1036

October 5-8
Duke Medical Alumni Weekend
Place: Durham
Credit: Category 1, AMA, pending
Info: Grace Taylor, 919/419-3200

October 7-8
22nd Alexander Spock Lung and Gut Symposium
Place: Searle Center, Duke University
Credit: TBA
Fee: $150 both days, $75 half day (physicians); $90 (allied health professionals)
Info: Dr. Joseph Marc Majure, Box 2994, DUMC, Durham 27710, 919/684-2289, fax: 919/684-2292

Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"Newspapers"

News is something someone, somewhere, doesn't want you to print—the rest is advertising.
—Anonymous

To get the truth from a newspaper, you have to read between the lines. *—Anonymous*

It is a seldom proffered argument that the advantages of a free press have a major function in keeping the government itself informed as to what the government is doing.
—Walter Cronkite

Blame is safer than praise. I hate to be defended in a newspaper. *—Ralph Waldo Emerson*

Editor:...A person employed on a newspaper, whose business is to separate the wheat from the chaff, and to see that the chaff is printed. *—Kin Hubbard*

The man who never looks in a newspaper is better informed than he who reads them, inasmuch as he who knows nothing is nearer to truth than he whose mind is filled with falsehoods and errors.
—Thomas Jefferson

Advertisements...contain the only truths to be relied upon in a newspaper. *—Thomas Jefferson*

Send aphorisms to Dr. Sexton at Box 3605,
Duke University Medical Center, Durham,
NC 27710, or fax them to 919/684-8358

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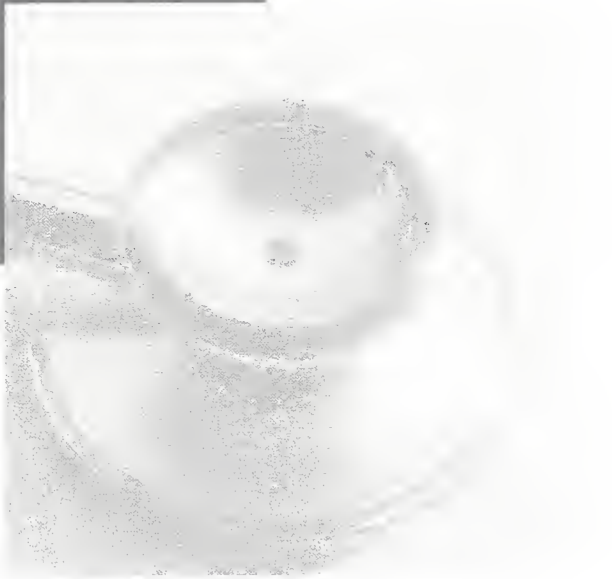
The St Paul
Medical Services



More Than 3,500 North Carolina Physicians Consult A Single Specialist

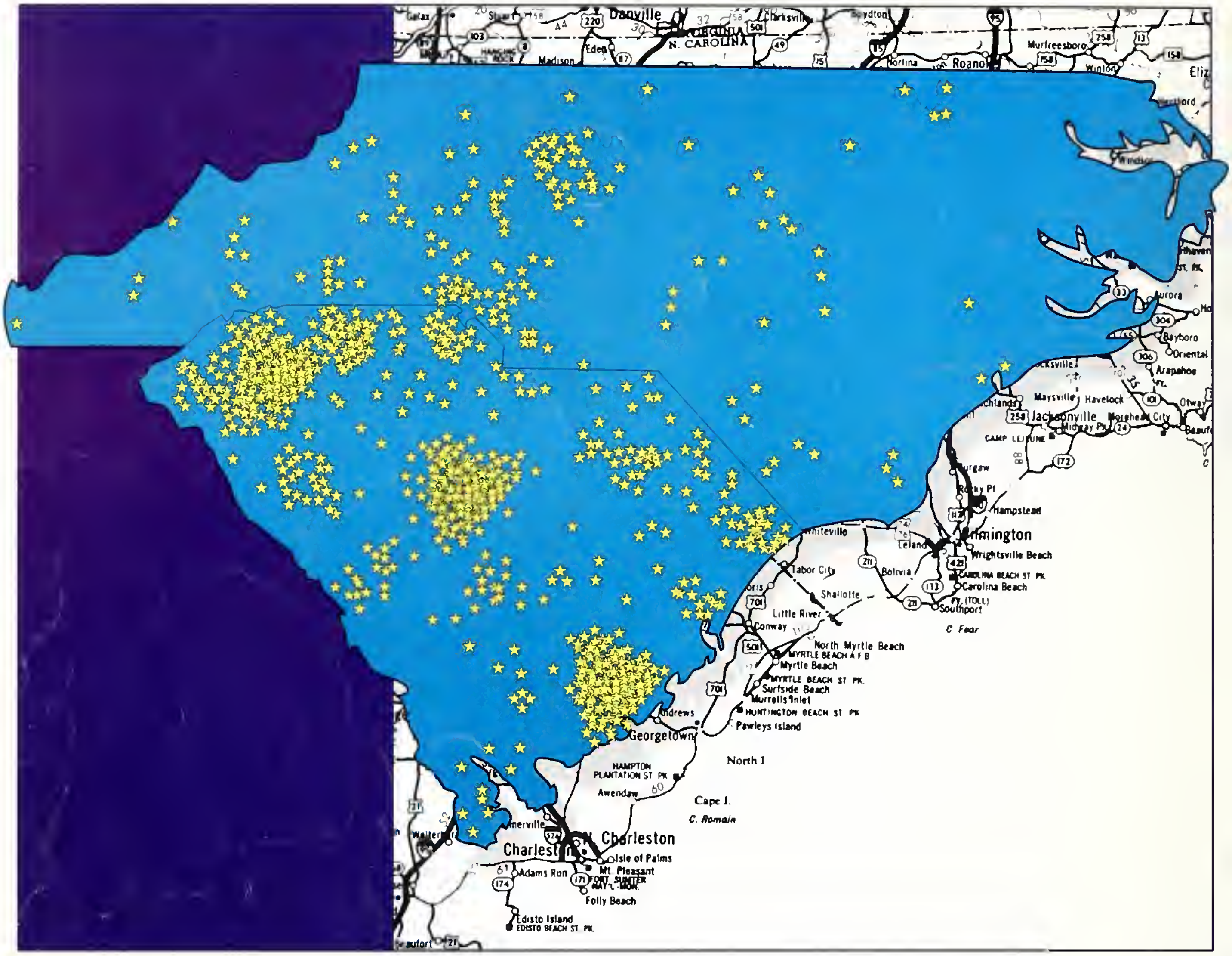
Thousands of North Carolina physicians consult one specialist for their medical liability insurance: St. Paul Medical Services.

With more than 60 years of experience, we are the nation's leading medical liability insurer. For North Carolina physicians, this means specialized loss control programs, claim and defense professionals with unparalleled experience, and the financial strength of The St. Paul. Plus, we offer professional, general liability and property coverages to meet all of your coverage needs.

St. Paul Medical Services. Specialists in medical liability insurance.

For more information, call Kathy Oldyn at **800.328.2189, ext. 2648.**

St. Paul Fire and Marine Insurance Company
St. Paul Medical Services
385 Washington Street
St. Paul, Minnesota 55102-1396



What can a map tell you about a computer system?

Plenty—if, like this one, it shows how many medical offices in the Carolinas use a particular practice management system to run more efficiently, effectively, and profitably.

For example, it might show how a 16-year commitment to "Working for Physicians" has resulted in over 800 installations in North and South Carolina.

It might bring home how features like "on-the-fly" refiling, encounter-form tracking, and direct transmission to North Carolina Medicare, Medicaid, and Blue Cross / Blue Shield (with no per-claim charges) are improving physicians' revenue.

It could clarify how critical "one-call" support can be in helping offices stay productive—how telephone support staff, software and hardware engineers, technicians, trainers, and a fleet of service vans can provide support unmatched in the industry.

It might demonstrate how on-going research and development brought innovations like the first integrated, direct electronic claims transmission in a practice management system.

Or it could validate the concept of regional focus: By selling systems only in the Southeast, a computer company can keep customers up-to-date on the latest insurance filing requirements.

It could emphasize the flexibility of multi-user, multi-tasking software that runs on the most popular operating system in the world.

And it could illustrate the value of having a computer vendor with a vision for the future and the expertise to make that vision work for you.

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The Official
Journal of the
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September 1995
Volume 56
Number 9

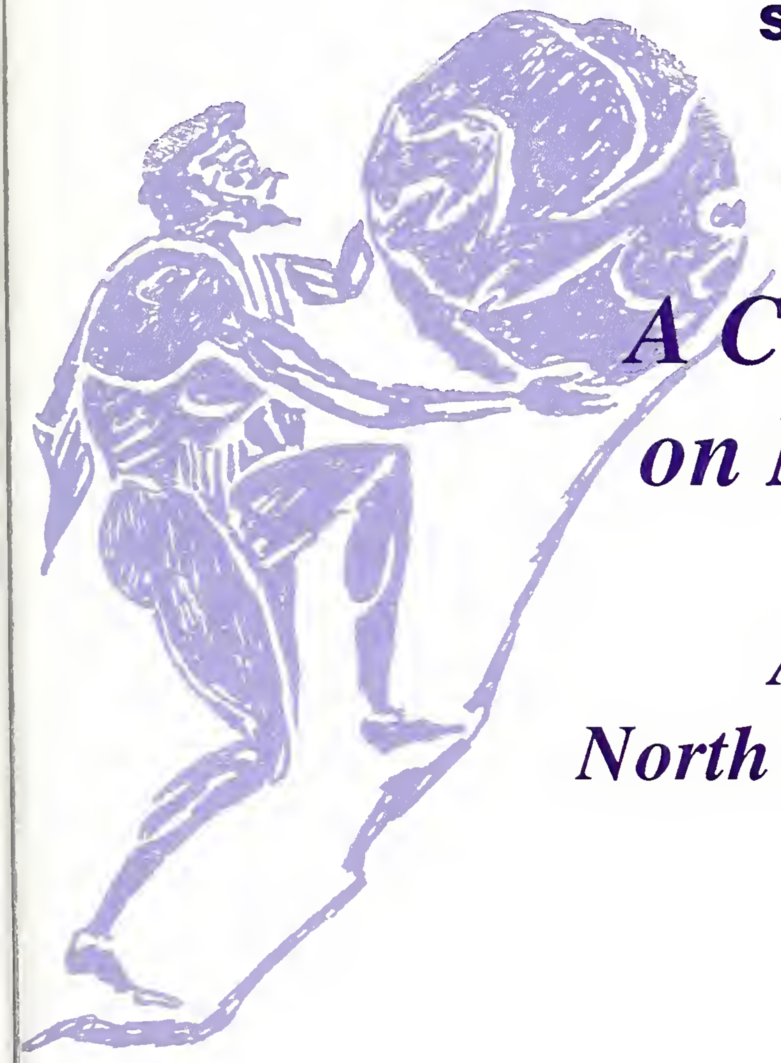
North Carolina Medical Journal

For Doctors and their Patients

North Carolina Medical Society's 141st Annual Meeting, November 9-12, Pinehurst

SPECIAL ISSUE:

UNIVERSITY OF NORTH C
13 1995
HEALTH SCIENCES LIBRARY



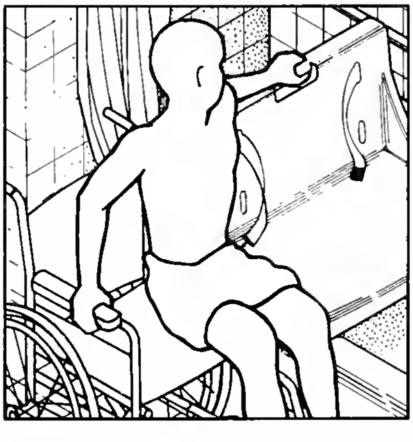
A Community Policy on Medical Futility?

A Conversation of the North Carolina Community

Jeremy Sugarman, MD, MPH, MA, Guest Editor

The Bath Was The Most Dangerous Place In The Home . . . Till Now.

Now it is easy to convert existing bath tubs into secure Safe Baths that exceed A.D.A. and ANSI standards. Designed for the elderly and physically impaired, Safe Baths are easy to install and easy to remove. Contoured for strength and constructed of durable high gloss white polyethylene, a Safe Bath can safely support an adult bather.



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For Doctors and their Patients

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NORTH CAROLINA MEDICAL JOURNAL
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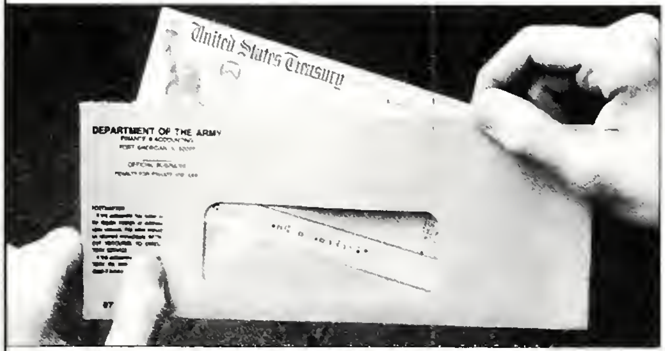

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FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor

The Drug Testing Dilemma

To the Editor:

Reading the June Physicians' Roundtable "Urinate in the Cup, Doctor" (NC Med J 1995;56:274-8) raises the dilemma: Is it more or less intrusive to do random/routine testing or testing for cause?

Testing "for cause" depends on various levels of "suspicion" that behavior or performance suggest drug abuse. This suspicion, may, in fact, be no more reliable than gossip, but the testing that is then done on the basis of that suspicion tends to harden the gossip and create a new layer and level of suspicion.

Random or routine testing by its very nature implies no suspicion of illegal behavior. The only person bearing a risk of being unjustly accused would be someone who received a false positive result and whose confidentiality were violated before that false positive could be properly corrected.

Justice Sandra Day O'Connor focused on the intrusive aspect of testing in her dissent regarding the seventh-grader in Veronia, Oregon, who refused to be tested in order to play on his school's football team. At least our fear of the loss of privacy might be mitigated were testing to become commonplace. Routine STS on hospital admission 30 years ago was like that.

John R. Dykers, Jr., MD
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Siler City, NC 27344

The Deputy Editor responds:

Routine "suspicionless" drug testing of physicians implies a broad-based suspicion of illegal behavior which is sufficiently likely to identify drug users that it warrants testing the entire physician group. All tested physicians are implicitly suspect of inappropriate behavior and are subjected to a bodily search. In my opinion, this is an egregious violation of individual privacy rights undertaken as a public relations gimmick to show that hospitals can "do something" in the war on drugs. This trammeling of the letter and spirit of the Bill of Rights should be denounced.

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Tularemia in North Carolina

To the Editor:

Reading the article "Tularemia in North Carolina, 1965-1990," (NC Med J 1995;56:314-7) by Drs. Langley and Campbell prompts me to note a paper that I authored with Dr. Thomas B. Barnett almost 30 years ago. It concerned five cases of pulmonary tularemia that had been diagnosed at North Carolina Memorial Hospital (now UNC Hospitals) in Chapel Hill.

The article, which appeared in the *American Review of Respiratory Disease* (Vol. 95, April 1967), included a review of the literature on pulmonary tularemia since 1944. It seemed to me that our paper would have been a good starting point for the authors.

F. Walton Avery, MD, MTS
12708 Morehead
Chapel Hill, NC 27514

Dr. Langley responds:

My co-author, Dr. Campbell, and I highly recommend Dr. Avery's article. It is an excellent review of pulmonary tularemia. Unfortunately, when we did a Medline search using the terms "tularemia" and "pneumonia" or "lung disease," his paper was not found. We discovered it by using the mesh headings of "tularemia" and "respiratory tract diseases."

It is likely that other cases of tularemia occur but are unrecognized, misdiagnosed, or unreported. Our study represents only a modest proportion of the actual number of cases that occur in North Carolina.

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Infant Mortality Under Scrutiny

To the Editor:

The article, "Recent Infant Mortality Trends in North Carolina," (NC Med J 1995;56:302-6) documents a decline in mortality risk in both white and minority patients comparing the periods of 1987-1988 and 1991-1992. Table 4 (pg. 305) shows that the major contribution to the decline in infant mortality risk among white patients (27%) was the reduction in deaths caused by birth defects. This is compared to a 13% contribution to the decline in infant mortality in minority patients due to a decrease in deaths from birth defects.

I would like to know if the reduction in the number of babies dying of birth defects results from an increase in pregnancy terminations following the antenatal identification of fetal defects. If so, this suggests that there is an increase in utilization of antenatal diagnosis by white patients as compared to minority patients.

If, in fact, the decrease in infant mortality is contributed to in a major way by pregnancy termination, this may be an example of what the late Dr. Andre Hellegers, founder of the Kennedy Institute of Bioethics, once described as "preventive dying." In other words, deaths from birth defects were not prevented, they were simply shifted to a point in pregnancy when they would not appear on the infant mortality statistics.

To use an illustrative but gruesome analogy, if all patients in premature labor were managed by injecting potassium chloride into the fetus to induce fetal death, the number of infant deaths due to prematurity/low birth weight would be reduced to zero, thereby resulting in a substantial reduction in infant mortality.

Watson A. Bowes, Jr., MD
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The authors respond:

Dr. Bowes suggests that the decline in infant mortality from birth defects might be due to an increase in pregnancy terminations following prenatal diagnosis of fetal malformations, and that this increase was more pronounced among whites than minorities. Unfortunately, we have no data available to directly examine this question. We do know, however, that the mortality risk from cardiac defects declined substantially for both races during this time (-29.5% for whites, -33.5% for minorities), and accounted for most of the decline in birth defect-related infant mortality.

Because many cardiac defects are not routinely detected by early antenatal diagnosis, it is unlikely that this decline would have been due to an appreciable increase in the number of medically terminated pregnancies. Precisely which factors may have played a role in the decline in birth defect-related mortality remains to be determined and, in our opinion, warrants further investigation.

The fact that the decline in infant mortality from birth defects accounted for 27% of the total decline in mortality among whites but only 13% among minorities is, in this case at least, mainly due to the racial differences in the proportion of all infant deaths caused by birth defects. The absolute magnitude of the decline in mortality from birth defects for each race group (-0.5 per 1,000 for whites, -0.4 per 1,000 for minorities) is similar for both groups.

The purpose of our analysis was to examine factors that contributed to the decline in the state's infant mortality rate; however, we agree with Dr. Bowes that the occurrence of a lethal malformation, regardless of whether the end result is an infant death, stillbirth, or induced termination, is still a reproductive loss and a personal tragedy for the mother and family. Everyone concerned will benefit if we intensify efforts aimed at primary prevention of birth defects, such as promoting periconceptional use of folic acid.

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Paul A. Buescher, PhD
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Raleigh, NC 27626-0538

Correction: Due to an editing error in the July article, "Recent Infant Mortality Trends in North Carolina," (NC Med J 1995;56:302-6) the break-out quote on page 306 is incorrect. The quote should read: "We need to focus our efforts on preventing extreme prematurity." The second part that reads "...rather than treating very low birthweight infants" should not have appeared.

In addressing this error, authors Robert E. Meyer, PhD, Paul A. Buescher, PhD, and Kevin Ryan, MD, state that "although prevention of preterm birth should remain our primary strategy for reducing infant mortality, this in no way diminishes either the importance of neonatal intensive care, or our obligation to provide the best medical care possible to all preterm or critically ill newborns. We strongly support our state's perinatal care program and acknowledge the substantial role that our perinatal centers have played, and will continue to play, in our efforts to improve the survival and quality of the life of preterm infants."

The Burdens of Abuse and Illness

To the Editor:

The article, "Substance Abuse Consultation in a Teaching Hospital," (NC Med J 1995;56:329-33) is good, but flawed. A statement on page 332 reads: "The latter is not surprising since 40% to 60% of psychiatric patients reportedly meet diagnostic criteria for substance abuse." The reader is referred to the original reference in *JAMA* (1990;264:2511-8) by Regier et al. The implication of the statement is that 40%-60% of psychiatric patients suffer from comorbid alcoholism. I am sure that this is not the case.

The paper by Regier et al is quite complex, with a number of charts, prevalence rates, and percentage calculations. A re-reading of the paper suggests that a more accurate interpretation of its data would that of its abstract: that "individuals treated in specialty mental health and addictive disorders clinical settings have significantly higher odds (than the general population) of having comorbid disorders."

Table 2 (on page 2514 of the Regier paper) indicates that a person with no mental disorder has a lifetime prevalence of substance abuse of 13.2%. A person with a mental disorder (all types considered) has a lifetime comorbid prevalence of substance abuse of 28.9%. The reverse of this grouping, that is the comorbid prevalence of mental disorders in people with substance abuse, is substantially higher, in the range of 45%-71.6%.

It is burden enough to struggle with the stereotypes and stigmata society continues to place on being mentally ill without having to bear the added burdens of the substance abuser. At the same time, it is clear that substance abusers suffer from an almost intolerable burden. Both of these disorders are serious, potentially lethal, treatable, and not bad habits or due to "repressed (suppressed) conflict."

Harold R. Gollberg, MD
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Black Mountain, NC 28711

Dr. Mathew responds:

The literature is extensive on the prevalence of substance abuse among psychiatric patients. Studies vary widely in methodology and populations studied. As might be expected, prevalence rates reported also vary a great deal.

The percentile figure we cite in our paper (40%-60%) is a rough estimate; higher and lower values have also been reported. For example, Ananth and associates[1] diagnosed substance abuse (DSM III) with the Diagnostic Interview Schedule in 54 of 75 (72%) psychiatric patients from the acute admission wards of Metropolitan State Hospital in Los Angeles. Buckley and associates found drug abuse in only 30 of 118 (25%) treatment-resistant patients with schizophrenia.[2] We did not discuss this issue in depth because the Editor instructed us to limit the length of the paper and the number of references. In fact, several references (other than the paper by Regier et al) substantiating the prevalence rate to 40%-60% were eliminated.

The main point we wish to make is that a strong relationship between psychiatric disorders and substance abuse has been established through studies that showed higher prevalence rates for substance abuse among psychiatric patients and higher psychiatric disorders among substance abuse patients in comparison to the general population.

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References

1 Ananth J, Vandewater S, Kamal M, et al. Missed diagnosis of substance abuse in psychiatric patients. Hosp Community Psychiatry 1989;40:297-9.

2 Buckley P, Thompson P, Way L, et al. Substance abuse among patients with treatment resistant schizophrenia: characteristics and implications for clozapine therapy. Am J Psychiatry 1994;151:385-9.

When You Don't Know What To Say, Don't Say Anything

To the Editor:

I have been a physician for more than 25 years; my son is in his first year of residency. Recently, we both learned an important lesson from one of my highly respected, and slightly younger, colleagues that I would like to share with *Journal* readers.

My colleague, whom I won't name for fear that he might be embarrassed by this public tribute, is a member of one of North Carolina's major academic institutions. Recently, he had to tell me and my family that my sister has an incurable disease—unresectable carcinoma of the head of the pancreas. The caring manner in which he delivered this hard news characterizes the sensitive and compassionate physician that all of us in medicine hope to be.

Personally, I have always dreaded sitting down with the family of a patient to tell them that their loved one has an incurable disease and will not be with them much longer. This duty is one of the things we fear most as physicians. When trying to explain why medicine can't cure a particular disease, my initial tendency is to bolt from the room and leave the family to their grieving.

But my colleague used a more sensitive tactic. He remained with me and my family in our time of grief. He really didn't say anything—he really didn't have to—as we attempted to digest the dreadful information that he translated for us. After five minutes of silence, we gradually began to ask questions. My colleague did not rush out of the room. He stayed and answered all our questions. I felt privileged to have accompanied my sister to her final consultation with my colleague. My sister then left for a cross-country journey to where she hopes to live out the rest of her life in a positive manner.

When I was in medical school, no one ever entertained the thought of a course on "bedside manners," so that we, as young physicians, could learn how to deal with difficult situations. I have heard through the grapevine that such classes are now being taught. This certainly is a plus if it's truly happening around the country.

I hope that I will never forget my colleague's words, "I wish I could have been of more help and good luck to you." He couldn't cure my sister's cancer, and he couldn't prolong her life. But, he was straightforward, sincere, and concerned about her total well-being. Given the circumstances, this is all my sister really needed.

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From the Editor:

We thank Dr. Lucey for his thoughtful and perceptive reflections. Programs to encourage students (alas, not often seasoned practitioners) are indeed in place in many medical schools. We have published two reports that commented on the program at Duke (see Tetel-Hanks J, NC Med J 1993;54:406, and Rashti C, NC Med J 1994;55:618).

Guidelines for Letters: Letters must be typed and double-spaced. Letters are subject to editing and abridgment and should be no longer than 500 words. We welcome longer letters, however, and will consider them for publication as editorials elsewhere in the *Journal.* For longer letters, send a 3 1/2-inch disk with the text written in MS DOS- or Macintosh-compatible format. We send letters that address specific points in articles to the original authors for response. Send letters to: *NC Medical Journal,* Box 3910, Duke University Medical Center, Durham, NC 27710, fax: 919/286-9219.

FROM THE GUEST EDITOR

A Community Policy on Futility?

A Conversation of the North Carolina Community

Jeremy Sugarman, MD, MPH, MA

This issue of the *North Carolina Medical Journal* consists of a series of rich articles written almost exclusively by North Carolinians about a single topic: medical futility. Most of these articles emanate from a statewide conference, "A Community Policy on Futility? A Conversation of the North Carolina Community," held March 10, 1995, in Durham. Representatives from every hospital in North Carolina as well as a wide variety of community leaders from across the state were invited to attend this beginning dialogue about medical futility, one of the most vexing problems facing modern medicine.

Judgments about medical futility are tough. They are tough medically, personally, legally, and philosophically. They are tough because they frequently involve conflicts about deep-seated values, and they are tough because they make us take a hard look at what we are doing in the practice of medicine. These are difficult things to think about. Nevertheless, spoken or unspoken judgments about futility are an essential aspect of medical decision-making. Hence, these discussions cannot be ignored, and the immediacy of clinical medicine requires that decisions be made. Moreover, the language of futility is already creeping into the clinic, the hospital room, and the courtroom, making it important that practicing physicians as well as philosophers and policy-makers understand what is meant by "futile treatment."

The Issue in Review

The articles and commentaries in this issue address many important aspects of the futility debate. In his introductory article, Peter Kussin describes the prelude to the conference. What started as a routine review of policy at Duke Hospital eventually drove an exciting process, which culminated in the March conference. While the conference was stimulating, Kussin ponders the implications of attracting only a subset—health care providers—of those invited to participate in the dialogue: perhaps North Carolinians simply trust health care professionals to take the lead on setting limits in medicine. However, given this trust in the setting where there are disagreements even among health care providers about appropriate therapies, we must respond with humility and a willingness to work hard to assure that all of those who receive health care have their voices heard.

To better understand *how* and *if* questions about medical futility are relevant to health care providers in North Carolina, Mohamad Eloubeidi, Jeffrey Swanson, and I surveyed all the hospitals in the state. We found that 17% of hospitals have policies on medical futility and another 18% are planning to institute such policies. Moreover, we found that once instituted, these policies are used in the care of patients. Thus, questions of medical futility seem to be not only relevant, but also prevalent, in the North Carolina community.

What about the notion of community? Would the difficulty of making some medical decisions disappear if we lived in a world of close-knit communities? And what troubles might accompany a world comprised of such communities? In his paper, Larry Churchill takes on these sorts of questions, first by pointing out the problems of "militant communitarianism" (where a single set of values drives a community) and "nostalgic communitarianism" (where we would give up our present situation for the mis-remembered halcyon days of yesteryear). Clearly these conceptions of community won't help address questions about futile medical interventions. Churchill describes the aspects of community that persist today and how we might use these to craft and justify practical procedural solutions to futile medical interventions.

Bettye Kelly, a social worker, endorses the use of similar aspects of community in discussing medical futility. Specifically, she reminds those working to develop policies on medical futility to be inclusive of all stakeholders, assure adequate deliberation, view policies as a means of enhancing communi-

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cation, make policies that are appropriate for the whole community, and establish relationships based on trust.

Donald Murphy, a practicing geriatrician, shares some of the lessons he has learned while developing community based futility polices in Denver. Murphy's experience in a program called GUIDe (Guidelines for Use of Intensive Care in Denver) has helped him clarify his understanding of the term "futility" and about how best to orchestrate conversations about this difficult topic within a community. Murphy maintains that futility is *not* about control, *not* about communicating with patients and families, *not* about defining physiological futility, and *not* a facade for rationing. He does think that discussing futility can help clarify the goals of medicine. In GUIDe, Murphy learned that it is essential to recruit wide community involvement, to incorporate the skills of mediators and lawyers, and to acknowledge the political aspects of the problems related to medical futility.

John Glasson, chair of the American Medical Association's (AMA) Council on Ethical and Judicial Affairs, offers his commentary on Murphy's presentation about GUIDe. Glasson, consistent with the AMA's position on "futile care," endorses the spirit of the GUIDe program, but cautions that these guidelines not be converted into law and that they get continuous adjustment and refinement.

Using sources ranging from Greek mythology to analytic philosophy that rarely cross the pages of medical journals, Lance Stell suggests that judgments about futility are, and always have been, an important part of medicine. Futility is embedded in medicine and this warrants explication. Stell does so by proposing a useful, although possibly unfamiliar vocabulary. Likening some of the philosophical problems of the contemporary futility debate (encompassed in the terms "futilitarianism" and "anti-futilitarianism") to those of utilitarianism, Stell develops descriptions of "medical act-futilitarianism" and "medical rule-futilitarianism." Despite the unfamiliarity of the terms, learning to understand them can be illuminating. Stell then puts a unique twist on the futility debate: even futile interventions can have symbolic utility. That is, an intervention may be important even if it doesn't produce a physiologic benefit. Finally, not wanting to be described as an ethicist who merely describes the options, Stell uses these premises to argue for the adoption of medical rule-futilitarianism in which futility policies would be welcome.

Before setting futility policies in place, however, Nancy King reminds us that there are other important ethical and legal considerations. King, unlike Murphy, argues that disagreements about futility often come down to disputes about who has the final authority to decide about medical care—is it the physician's decision or the patient's? And many disputes center on disagreements about fundamental values. Therefore, in order to be morally acceptable, futility polices must invite, or even force, conversations about medical treatments. This approach is grounded in the familiar process of informed consent and the duty to share information before a course of action is taken. Therefore, futility policies should not be simply a means of allowing health care providers to make unilateral decisions. Finally, King discusses implications of the Baby K case (pointing out its applicability only to cases involving children) and how laws governing malpractice and abandonment relate to futility policies.

In undoubtedly difficult clinical situations, it seems reasonable to assume that caregivers would like legal protection when they invoke policies on medical futility, but Mark Hall suggests that such protection is uncertain. Potential legal risks to those who implement futility policies are based on claims of malpractice, the legal requirement to provide emergency treatment under patient dumping laws, and laws protecting citizens with disabilities. Apart from implementation, those who develop futility policies face a technical, although probably untenable, legal risk based on antitrust and tort law. Nevertheless, Hall points out that we will simply have to watch the courts and see whether these potential legal risks translate into real obstacles to futility policies.

In contrast, David Warren thinks it more likely that legislatures, rather than the courts, will enter the futility debate. In his article, Warren reviews the ways in which legislatures have demonstrated a willingness to formulate laws about decisions at the end of life, such as advance directives, do-not-resuscitate orders, and more recently, physician-assisted death. This review suggests that although other avenues for establishing policy on medical futility exist (including professional codes and guidelines), it is probable that legislatures will govern the medical futility arena.

Nevertheless, the central promise of futility policies is to help physicians and other caregivers make decisions in difficult situations, but if these policies are poorly designed they may make matters worse for caregivers by creating a dual allegiance to patient care and to the institution in which they work. Marion Danis outlines the features that make futility policies workable from the perspective of caregivers and how caregivers can best serve their patients within the constraints of these policies. Danis asserts that futility policies must minimize conflict between caregivers and patients and their families. Consequently, to be workable, futility policies should 1) be formulated with the assistance of a community advisory board, 2) not necessarily be uniform across all institutions, 3) offer flexibility in the manner in which interventions are withheld or withdrawn, 4) be limited to situations in which agreement about futility is widespread, 5) have provisions for notifying patients prior to an actual need to invoke the policy, and 6) provide legal protection for caregivers who follow the policy. Regardless of particular policy stipulations, caregivers must maintain close, caring relationships with patients, aligning with them in the decisions to be made.

Loretta Kopelman examines a series of well-publicized cases regarding matters of futility and finds four conditions present in each of them: 1) judgments of medical futility are based in medical science; 2) judgments about futility are value-laden and are related to assessments of the goals of medical care; 3) there are disagreements about where to draw the line between useful and futile interventions; and 4) the treatments are burdensome. There have been two distinct approaches to resolving these cases: first, assuming conflict is due simply to problems in communication, and second, presuming that these cases are really about resource allocation. However, neither approach resolves these cases. This, Kopelman argues, suggests that the concept of futility is itself *not* problematic, but rather that it forces us to face some hard questions about the goals of medicine and our community.

Harmon Smith, addressing religious aspects of futile care, reiterates Stell's claim that questions about futility are not necessarily new and Kopelman's assertion that discussions about futility require a hard look at the goals of medicine. Smith's take on these claims emanates from sources in religious thought. Since religious and other deeply held values shape medical values, an understanding of them might help us face questions about futility today. In very different ways than the medical community, religious communities are accustomed to approaching questions about values and the human experience, the need to align rather than isolate persons in community, and the way we humans approach tragic ends. Therefore, religious experience and wisdom might be quite useful both in conversations and in clinical cases regarding medical futility. Yet helpful it will be only if it is intercalated into discussions about medical futility from the outset.

Finally, included in this issue is an article by Ellyn Pearson, Carl Bose, and Ernest Kraybill that was not presented at the March conference. It describes an empirical study of judgments about medical futility in the Neonatal Intensive Care Unit (NICU) at the University of North Carolina Hospitals. By performing a retrospective chart review of all infants admitted to the NICU, the authors learned much about the making of decisions to limit treatments determined to be futile. These decisions were often sponsored by physicians, but were generally made by physicians and families working together. The work described in this article shows the importance of medical futility judgments in the clinical practice of medicine.

The Importance of Being Informed

The divergent perspectives of these authors provide a valuable resource for what I hope will be a continuing dialogue about medical futility. Whether or not we ultimately decide to engage in the difficult process of crafting explicit guidelines about futile treatments, it is vitally important for physicians and other health care providers as well as all members of the North Carolina community to be informed participants in the conversation. Only in this way will we be able to clarify the goals of medicine and deliver morally appropriate medical care. ❑

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Beginning a Conversation on Medical Futility in North Carolina

Peter Kussin, MD

Two years ago the Duke University Medical Center Ethics Committee reviewed the hospital's policy on orders limiting cardiopulmonary resuscitation (CPR) in patients undergoing invasive or operative procedures. Several committee members asked whether we could develop institutional guidelines for withholding CPR when it would be futile. Dr. Joseph C. Greenfield, Jr., then chair of the Department of Medicine, formally requested that the Ethics Committee consider policies on limiting resuscitation in two specific clinical scenarios: 1) in individuals brought to the emergency department after an unsuccessful attempt at out-of-hospital CPR; and 2) in patients with advanced, progressive, and clearly terminal illnesses. The Ethics Committee took Dr. Greenfield's letter more as a stimulus for discussion rather than an actual agenda for action, but the clinical scenarios he described were considered prototypes of situations in which resuscitation might constitute futile therapy.

Setting Limits to Treatment

In the process of considering Dr. Greenfield's letter, the Committee moved beyond cardiopulmonary resuscitation in specific situations into the more treacherous terrain of defining futile medical therapy. From the outset, the Ethics Committee realized that the task of defining *limits to medical therapy* (a term that may be preferable to the more emotionally charged *medical futility*) should not be carried out by the Duke committee in isolation; we needed to reach out to the North Carolina community at large. Dr. Mark Rogers, chief executive officer and vice chancellor for health affairs, gave us institutional support and urged us to discuss the issues at a statewide level. The first step was to identify individuals and groups who could support and strengthen our efforts. Right in our own backyard was a wealth of expertise about bioethics in general and medical futility in particular. Our major academic and medical institutions encouraged consideration of these problems exactly as Duke's leadership encouraged us: all want to engage North Carolinians in a conversation on setting reasonable and appropriate limits in medical treatment.

A recognition of the talent available galvanized our efforts, but a realization that the first steps in this process should be modest tempered our enthusiasm to reach fast conclusions. In deciding how to move forward with this conversation, we believed that a statewide conference be the next step. In planning this conference, Dr. Jeremy Sugarman and I focused on two objectives: 1) There should be broad representation from professional and community groups; and 2) that it is important to maintain a neutral posture about the feasibility of developing community standards on medical futility.

We invited representatives from community and religious groups, state and local governments, medical institutions, professional organizations across the spectrum of health care, business leaders, and representatives from the insurance and health care industry. Our final list of more than 500 names included the chairs of every hospital ethics committee, presidents of every relevant professional organization, and CEOs and chairs of boards of trustees of every hospital in our state. We purposefully included those most at risk of being disenfranchised in the debate over futility—the poor, the uninsured, the elderly, and minority populations.

Dr. Sugarman's task was to ensure that the program was comprehensive and included different perspectives on the question of medical futility. On March 10, 1995, we assembled a truly outstanding group of panelists and speakers (all but one from North Carolina). Their opinions span the spectrum of our subject. Based on the written comments and evaluations I have received from the 100 conference participants, I believe that we achieved both our objectives. We have successfully "broken the ice," but there still lies ahead a long and possibly difficult conversation for our community.

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Pluses and Minuses

There were positive and negative aspects to the conference. Participants heard insightful and often impassioned presentations. The small-group sessions on legal, religious, caregiver, and legislative aspects of the futility controversy were informative and often quite spirited. Most importantly, the sessions allowed a number of individual participants to join in the conversation.

On the negative side, we were disappointed that our audience was almost exclusively limited to health care providers and individuals directly involved in bioethics. Our lack of success in attracting business leaders, hospital administrators, government officials, and most importantly, representatives of the community at large points out just how much work must be done. North Carolinians have access to state-of-the-art medical care at a number of nationally recognized academic medical centers and even more excellent community hospitals. It is not surprising that a public which expects such care is not easily drawn into a discussion of limit-setting, especially in a state where notions of rights and freedoms are deeply rooted.

Waiting for Medicine to Lead the Way

I think that the best explanation of why we did not attract business, community, and religious groups is that the public is waiting for medicine to "get its act together." I believe that the community at large is waiting for health care professionals, health care policy experts, and bioethicists to establish the framework for such limits. Citizens of our state seem to trust their physicians more than in other places across the country. In many parts of North Carolina this trust in the motives of doctors and all health care professionals is rooted in communities small enough that citizens know their health care providers not only as people in white coats but also as neighbors and friends. We must build on this fortunate circumstance—it will ultimately make our conversation richer and more natural.

In no way do I endorse a paternalistic approach to setting limits in medicine, but I do believe that the North Carolina community wants health professionals to take the lead in this arena, if we can only decide which way to go! Health care professionals who believe that our society must set socially derived limits for health care should lead the dialogue about this.

Setting limits is painful, and saying "No" is difficult, but not impossible. We need basic changes in the expectations of patients and clear direction from the community as to what is sensible and fitting.

The Next Steps

I propose that the next phase of our conversation focus on two objectives: 1) Health care professionals who care for patients in settings where futility discussions are common should meet in an attempt to achieve consensus about what constitutes futile medical treatment, and 2) we must encourage greater community participation in discussions of setting limits. As Don Murphy points out in his paper (see page XXX), education and information are the keystones of the process, although in many cases the solution might need to involve formal conflict mediation.

I want to establish a statewide organization with full representation from the groups that were invited to our conference (see note below). To retain a regional/local character, regional working groups will be based in Greenville, Charlotte, the Triangle, the Triad, and Asheville. These groups will share common objectives and organization under an umbrella group created to coordinate work and share information. The first steps will be to identify a core group of participants, develop a mission statement, and outline objectives and activities. This process will take years and there are no guarantees that we will ever be able to develop community standards about futile treatment. But the ice has been broken and the conversation should continue. ❑

Author's note: Individuals interested in participating in a statewide organization on futile medical treatment may contact Dr. Kussin at 919/684-3202.

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North Carolina Hospitals' Policies on Medical Futility

Mohamad Ali S. Eloubeidi, MD, Jeffrey W. Swanson, PhD, and Jeremy Sugarman, MD, MPH, MA

The concept of medical futility has gained currency in recent years as health care providers and patients alike have recognized that life-sustaining medical interventions—although sometimes technically efficacious and usually quite costly—in many cases offer little or no meaningful benefit to terminally ill individuals. At the same time, laws, regulations, and bioethical scholarship have championed the right of individuals to make their own health care decisions at the end of life.[1]

In an era of increasing concern about cost control and of perceived threats to clinical autonomy, different judgments of futility can potentially lead to considerable conflict among patients, family members, doctors, hospitals, and health care payors. In response to this possibility of conflict, hospitals have been encouraged to develop policies for determining medical futility and for deciding when to withhold interventions that may be defined as futile.[2-4] Several hospitals have responded to this encouragement by instituting such policies. [5-6]

However, there has been no systematic study of the pervasiveness and specific provisions of institutional policies on medical futility. We therefore surveyed all hospitals in North Carolina in order to describe the characteristics of institutions that have put medical futility policies in place, the reasons why these policies were developed, and the degree to which they are used in patient care.

Methods

Our survey instrument consisted of 23 questions in two main parts. The first part addressed the general characteristics of the hospitals including the kind of hospital (public, private, federal, state, non-profit), type of practice (general, substance abuse, psychiatric), affiliations (religious, medical school), number of beds (total fully staffed beds, intensive care unit beds, long-term care beds). The second part addressed issues related to clinical ethics in the hospital (such as the presence of an ethics committee, and policies for advance directives and medical futility). The study was exempted from review by the Duke Institutional Review Board.

We developed a mailing list consisting of all (165) hospitals in North Carolina. In October 1994, we sent a cover letter explaining the purpose and the nature of the survey and a self-addressed return envelope to the medical director, the chief executive officer, or the chief of staff of each hospital on the list. We telephoned institutions that did not respond to the survey within one month and asked them to provide the survey information by telephone. If an institution declined to respond, we contacted its administrative offices seeking information available to the public (the type of hospital, its affiliations, and whether the hospital had a policy on advance directives) so that we might better understand the characteristics of non-respondent institutions. Data were entered into a computer using Paradox for Windows (Borland International, Inc., Scotts Valley, CA) and analyzed with PC-SAS software (SAS Institute, Research Triangle Park, NC).

Results

Responses were obtained from 143 of 165 hospitals (a response rate of 87%). Table 1, next page, shows characteristics of responding and non-responding institutions. Of responding hospitals, 48% were public; 35%, private; 6%, state-supported; and 7%, either county-owned or not-for-profit. Eleven percent

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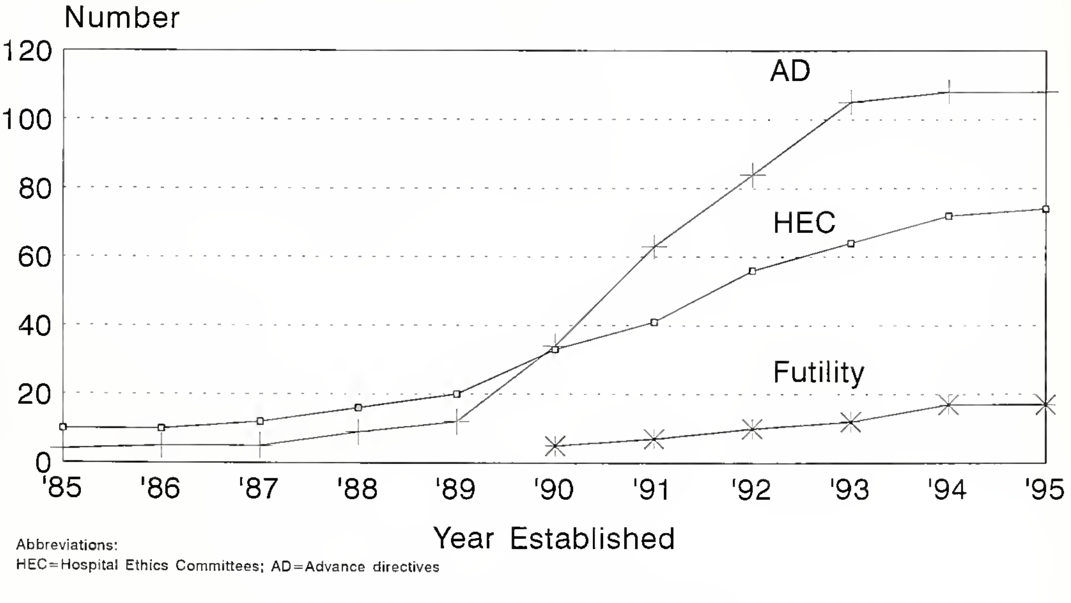
Table 1. Characteristics of responding and non-responding institutions

	Responding		Non-responding	
Total	(n=143)		(n=22)	
Type	N	%	N	%
Public	69	48	7	32
Private	50	35	11	50
State	8	6	2	9
Federal	8	6	0	0
Others	2	1	2	9
Missing	6	4	0	0
Type of practice				
General	125	87	13	59
Psychiatric/substance abuse only	15	11	9	41
Missing	3	2		
Religious affiliation	7	5	0	0
Medical school affiliation	37	26	5	23
Ethics committee	89	62	15	68
Policy on advance directives	129	90	5	23

of responding institutions were either psychiatric or substance abuse facilities. Five percent had religious affiliations, and 26% had a medical school affiliation. Non-responding hospitals were similar to responding hospitals except for a relative preponderance among non-responders of hospitals that provide only psychiatric or substance abuse care (41% vs 12%, p<.0001). Hospitals that did not respond were less likely to have a policy on advance directives (23% compared to 90%, p<.0001).

Sixty-four percent of responding institutions had ethics committees, most of which had been in place only during the past decade (Figure 1, below). Ninety-one percent of responding institutions had a policy on advance directives. However, only 50% of psychiatric and substance abuse hospitals had these policies, yet 87% of general hospitals had them (p<.0001). Most hospitals have put policies on advance directives in place in the past four to five years, with the peak year being 1991. The recent increase in prevalence of policies on advance directives is probably related to the 1991 implementation of the Patient Self-Determination Act which requires all institutions receiving Medicare and Medicaid funds to inform patients upon admission about advance directives, to tell them how the institution responds to these directives, and to ask whether they have an advance directive.[7]



Abbreviations:
HEC=Hospital Ethics Committees; AD=Advance directives

Fig 1: Prevalence of ethics committees and policies in NC hospitals.

Seventeen percent of responding institutions had a policy on medical futility, and 18% of those without policies reported that they plan to have one (Table 2, next page). Many factors were reported to have precipitated the creation of medical futility policies (Table 3, next page). Every hospital that reported having a policy on medical futility also reported a policy on advance directives. Seventy-five percent of hospitals that reported having a policy on medical futility also had an ethics committee. Five of the seven hospitals that reported a religious affiliation said that they either had a futility policy (n=3) or planned to have one (n=2). Policies on medical futility were more common in larger rather than smaller hospitals (present in 20% of hospitals with more than 200 beds, 28% of those with 100-199 beds, but only 11% of hospitals with less than 99 beds).

Once instituted, futility policies were actually used. Indeed, 45% of institutions reported having used the policies for a variety of reasons including difficult cases in the intensive care unit, guiding physicians, and in making decisions about patients on ventilators.

Discussion

A much larger percentage of non-responding (41%) than responding (11%) institutions were limited to psychiatric or substance abuse practice. This difference in response rate may be related to the kinds of patients treated in these hospitals.

Table 2. Ethics policies in 143 NC hospitals

Type	Yes	Number responding	%
Advance directives	129	141	91
Medical futility	24	139	17
Planned medical futility	17	95	18

Table 3. Some precipitants to creating a futility policy

- Assumed JCAHO requirement (n=3)
- Ethics committee recommendation (n=3)
- Thinking about outcomes in difficult cases
- Medical and societal changes
- Physician request due to liability concerns
- Predominant geriatric population

Since unlike general hospitals, psychiatric and substance abuse hospitals do not typically treat people with terminal conditions, the issues of advance directives and medical futility may not be as salient to them, lessening their willingness to respond to a survey on these topics. Similar considerations might explain the lower prevalence of policies on advance directives in psychiatric and substance abuse hospitals compared to institutions with a broader case mix.

In any event, 17% of responding hospitals in North Carolina have medical futility policies, and 18% of those without such a policy plan to have one. Combining these two groups suggests that at least one-fourth of hospitals in North Carolina are wrestling with questions related to medical futility.

Several hospitals in North Carolina established policies on medical futility based on the assumption that this was required by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). The JCAHO has recently announced new and stringent standards for patients' rights and organizational ethics, but policies on medical futility are clearly *not* required.[8] What is required is a means of resolving ethical issues that arise in the care of patients.

A majority of the small number of responding hospitals that reported a religious affiliation either had a policy on medical futility or planned to institute one. Since the total number of hospitals in this category is small, we can only speculate on the possible reasons for this finding. Perhaps, those hospitals with religious affiliations tend to emphasize procedural matters related to ethics, including policies on futility. It is also possible, of course, that religious affiliation provides the institution with a set of unifying values, thereby mitigating problems of agreeing on a definition of futility.[9] Coherent definitions of futility might make policies more feasible than in settings where there was no such agreement. Clearly, we need additional research to better understand this finding.

Consistent with the emerging literature, medical futility policies are a relatively new phenomenon in North Carolina. Indeed, most policies have been in place for only four to five years.

We have not yet examined the actual nature of the policies, but, once instituted, they are used in the care of patients. Unfortunately our data do not provide a complete understanding of the clinical situations in which they have been used. Future studies might want to evaluate the nature of existing futility policies as well as how they are actually used. This will assure us that these futility policies are both crafted to respect the rights of patients and that they are used in a morally and medically appropriate fashion. ❑

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The Ethical Issues of Futility from a Community Perspective

Larry R. Churchill, PhD

In discussing the need for a community standard of medical futility, we recount the horror stories of Helga Wanglie (at the end of life) and that of Baby K (at the beginning of life). Helga Wanglie was an elderly woman in a persistent vegetative state whose family insisted on maximal treatment,[1] and Baby K an infant with anencephaly whose mother insisted on maximal treatment.[2] In each case the family demanded treatment in opposition to all available medical advice. I use the term "horror" stories self-consciously. It comes from the Latin verb *horror*, meaning to bristle or shudder; it denotes strong aversion mingled with fear, dread, and repugnance.

The Wanglie and Baby K stories are horror stories for several reasons. First, they are instances in which patients appear to have been treated to satisfy other's needs rather than their own.[3] Second, these stories represent a challenge to the idea of medical authority as arbiter of the boundaries of appropriate care. They provide an instance of the victory of consumer demands over professional norms. Finally, Wanglie and Baby K are horror stories because they exemplify the thesis proposed by Engelhardt and others: that our society is marked by irreconcilable value conflicts and the absence of commonly accepted moral authorities.[4] If Engelhardt is right, then the best we can hope for is a tolerance of differences; any and all medical contracts will need to be honored, so long as one is insured or can otherwise pay for these treatments.

Some might despair about such pluralism and conflict, but I believe that we can arrive at community standards for the use of medical technologies. If we are to succeed in defining such standards, we must be aware of the pitfalls involved in how *community* is conceived. Unless we are careful, community standards may become even more frightening than the stories of Wanglie and Baby K.

Individuals and Communities

One reason Americans are such devotees of liberal individualism is that our experience in communities has not been altogether good. Americans are ambivalent about community, fluctuating between a nostalgic longing for the organic relatedness and tightly woven affiliation of a *Gemeinschaft*, and the need to repudiate and break out of intimate community in order to secure identity as autonomous persons. The task of devising community standards for futility in the use of medical technologies lies between these alternatives. We need to establish a *Gesellschaft*—a rational, cooperative agreement that seeks common goods and purposes, but does not obliterate differences. This will not be easy because Americans think of communities as established by transcendental authority, blood ties, or providential design. Americans are not well-practiced in the mundane kind of community-*building* needed to produce broadly acceptable policies on medical futility.

Part of our aversion to setting community standards and our distaste for appeals "to the common good" is rooted in our fear of what Tom Beauchamp and Jim Childress call "militant communitarianism."[5] Militant communitarianism is characterized by ethical certainty and self-righteousness, and the willingness to use power to enforce a moral vision. For example, Dr. C. Everett Koop behaved as a militant communitarian in enforcing the Baby Doe regulations of the early 1980s (he had become a more moderate and constructive communitarian by the late 1980s and early 1990s when he worked for condom distribution to control the spread of HIV). Ezekiel Emanuel of Harvard comes perilously close to militant communitarianism in arguing for a health care system organized around communities of like-minded persons who can set their own standards for care, *and* set criteria for admission or exclusion to their community.[6]

Proposals like those of Emanuel and Koop's Baby Doe regulations support the claims of historian Derek Phillips that communitarian politics-of-the-common-good often turn out to be associations of "Us" formed to dominate an excluded "Them." Phillips does not use the republican rhetoric of ancient Athens or colonial America, but rather a study of the concrete particulars, to argue that "...the thrust of the communitarian ideal is simultaneously to unite and to divide...[because] community seems to require a strong sense of solidarity and belonging, but

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also seems to require the presence of enemies within and without."[7]

We must avoid militant communitarianism when developing community standards, so that those who disagree are not seen as "enemies of the common good." We may be horrified at the actions of the families of Wanglie or Baby K, but we must not villainize them. Whatever community means, it must surely mean inclusiveness in the process of arriving at standards. It is not simply an honorific title given to norms devised by the professionally and economically powerful.

Another wrong-headed notion of community is what I call "nostalgic communitarianism" such as that proposed by Alastair MacIntyre in *After Virtue*.[8] MacIntyre longs for what he sees as the community of ancient Greece and medieval Europe, community that (he thinks) was lost during the European Enlightenment. MacIntyre believes that our present situation is bleak. There is, he says, no shared, public, or rational justification for any moral system; public moral discourse is an inharmonious melange of ill-assorted fragments. If we accept MacIntyre's assumptions, no public policy on futility will be possible because there will be no way to reach consensus in an ethical Tower of Babel. MacIntyre would like us to hunker down in some intimate community of virtue, to ride out the present dark age in hopes of a new St. Benedict!*

MacIntyre's pessimistic nostalgia is at least as great a threat to our efforts as militant communitarianism. Thank God, he's not right. MacIntyre's notion of a once intact (and now shredded) commons is historically dubious. He is fond of hyperbole. He downplays the many contemporary instances of liberal individuals finding ways to cooperate despite their differences. MacIntyre's intellectualized notion of community results from reading social and political events as if they were philosophical ideas. His portraits of irreconcilable conflicts in modern life seem to be drawn from newspaper accounts of life-or-death dilemmas. He would paint a different picture if he saw how nurses, patients, physicians, social workers, families, chaplains, and others work out their differences at the practical level. Most people do not worry about whether their moral beliefs can be systematically justified top-to-bottom into a coherent philosophical picture. Rather they worry about how to live lives that, on reflection, they can respect or at least tolerate. They are what Jeffrey Stout calls "moral bricoleurs"—innovative moral craftspeople who use the materials they find at hand to fashion livable solutions to their problems.[9] And this is what we will do with policies about futility because, in a sense, it is all we *can* do, all we *need* to do. The pessimistic despair about conflict resolution presented by MacIntyre and others need not define the task, or deter our efforts. Consensus about futility will not be achieved by agreeing on a clear definition of the term and then deducing the policy consequences, but rather by articulating practical policies forged in the give-and-take of seeking agreement.

Who Is Community?

But back to the "We" of community. Who is this "We" anyway? Who is included in the moral give-and-take seeking resolution? It ought to be all of us, or at least as many members of the community as can be engaged. Inclusiveness is all the more urgent because we have no policies at present that give all citizens a stake in the health care system.

I find it ironic that we try to reach consensus about futility in a few high-tech situations at the margins of life at a time when we still have no common provision for even basic health services to 40 million of our fellow citizens. We are like diners trying to decide how much to spend on the Cabernet when 20% of the hungry have only grudging and sporadic admission to the dinner table. Common understandings of futility are, of course, important to any health care system. My point is that decisions about futility will inevitably be more intractable in the US where large numbers of people experience increased morbidity and premature mortality because they lack health care. This point has been definitely argued by Norman Daniels.[10] His point is that in any system not serving all citizens (and thereby regulated by constraints of justice), every "no" a physician says to a patient is morally contextless, and can be construed as arbitrary and discriminatory. The US system *does* discriminate in terms of access, and therefore efforts to carve out workable futility policies will not only *not* solve the access problem, but will run the risk of looking like more discrimination. Unless they are part of a larger social context, futility policies risk being seen as an effort by insurers, or physicians, or physicians-hospitals-insurers-in-collusion, to limit costs and increase profits. No matter what futility policies are devised, some patients will be denied care they think they need and deserve.

Can we forge larger social standards or agreements to show that denial of treatment for legitimate reasons of futility does not echo previous denials made on economic or racial grounds? The uninsured person who finally gets into the system because his or her symptoms have become too serious to be ignored will little tolerate or understand a futility policy that sounds like more racial and economic discrimination. Marion Danis and I have argued elsewhere that only in an inclusive health care system does it make sense to talk about everyone's responsibilities to prudently use the limited resources available.[11]

The gross inequities of the US health care system present a tragic irony but not an insurmountable barrier to devising futility policies. There are at least three reasons why futility policies, despite their susceptibility to skepticism from community and patients, are useful and should be vigorously pursued:

1) We need to protect the ethical integrity of health professionals from the zealotry of those who will stop at nothing to bend the system to their desires. Professional ethics provide a counterforce to both the vitalism and nihilism of patients, insurers, and hospitals seeking to avoid litigation. Futility policies should embody professional norms, not simply consumer desires or the economic and public relations policies of provider organizations.

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*St. Benedict's rules of common sense were promulgated following a lengthy period of isolation.

2) We need to protect those of us who fund the system through public monies and pooled insurance premiums. We must not be denied effective care because resources have been consumed by ineffective care. Those who contribute to the system are owed the prudent use of resources. But even those who contribute little money deserve a more rational system than the present one, one which treats people, rather than services, as expendable.
3) We need to demonstrate that it is possible to break free from the grip of medical utopianism—the idea that medicine is more important than other social goods, that medical progress holds the key to human happiness. Futility policies that express a reasonable balance about the use of medical technology would indicate that Americans have serious cultural values and a grasp of their humanity, not just an aversion to death or a fascination with machines.

We need futility policies that are not scientifically pretentious, that combine professional judgments and social values about the possible and the desirable. We should eschew the idea that a community consensus about futility will have some sort of value-free scientific standing. What we need are working policies on the use of medical resources, policies that include a notion of what would be unwise and disrespectful for patients (or families) to demand, and what would be damaging or unjust for professionals to offer.[12] I don't care whether this is called a "futility" policy or a "standard of care" policy, or something else, so long as we all understand what it is and why it is necessary. ❑

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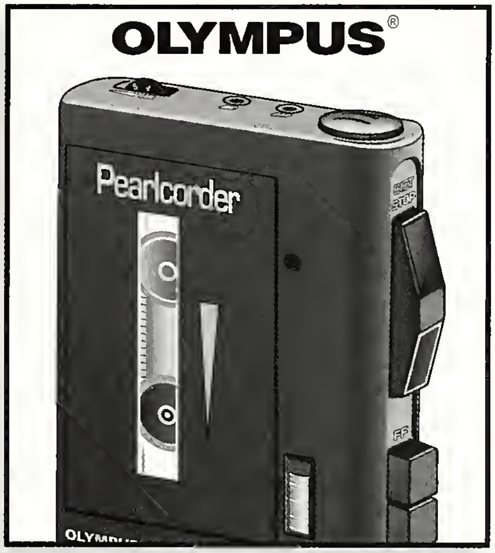

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A Social Worker's View of Futility Policy Issues

by Bettye Kelly, MSW

I have worked for Durham County Social Services for about 30 years. I offer here a few points on medical futility, primarily from the perspective of a social worker.

Inclusion. When we talk about medical futility policies, we need to be all-inclusive, to have all of the stakeholders involved before a policy is finalized. Of course, we must clearly identify these stakeholders. I know many who have not yet been a part of the conversation, and they do need to be included. If we want to think carefully about such policies, then we need to seriously consider how to involve all the stakeholders.

Deliberation. Futility policies should be developed slowly and deliberately to be sure that all angles have been reviewed. Once policies are adopted, it is critically important that everyone know that a policy adopted at a particular time is not set in stone. All policies need periodic review. Technologies change; laws change; societal values change; health policies change. It will be important to continue reviewing, and making necessary changes to the policies.

Communication. Futility policies need not, and should not, be punitive. They should be developed so that they make sense to the medical profession and to the public. Rather than discouraging communication, good policies will encourage dialogue among medical professionals and between health care providers and patients.

Doing what's right. We don't need to be making policies out of fear. All of us worry about being sued, but we need to get beyond that and really look at what is right to include in such policies. Dr. Churchill states that policies, if adopted, need to be specific for a particular community. Communities differ. We need to recognize that. We can always learn from the efforts of other communities or other medical professionals, but we need specific policies that apply to our own community. We must never overlook the cultural, racial, or economic make-up of a community in developing such a policy.

Trust. If and when futility policies are developed, it is critically important to forge a relationship of trust so that issues of turf and trust do not arise between patients and their doctors. ❑

Lessons from Communities in Conversation

The Colorado Experience

Donald J. Murphy, MD

The title of this special issue and the symposium on which it was based—A Community Policy on Medical Futility? A Conversation of the North Carolina Community—is striking for several reasons. First, the symposium was sponsored by a university. The universities in our country have talked about futility but have not done much about it. Private hospitals have been much more active. Duke is among the first universities to show such leadership. Second, the symposium suggests a dialogue that could lead to community policies. Third, the community is assumed to encompass the entire state. These are bold efforts, long overdue, that if successful, could help all states.

Defining Terms

In Colorado, we began our efforts two years ago. I would like to share a few lessons we have learned, but first I want to comment on the use of the word *futility*. Futility has taken a beating in the medical and ethical literature.[1-3] I do not plan to review the futility debate; I simply want to put my spin on it. Let's start with what futility is *not*.

Futility is not about control. It is not about a bunch of disgruntled paternalists who want to regain the control they lost to patients in the 1960s. I am a geriatrician, practicing primary care with many other primary care doctors and subspecialists. I am chair of the Ethics Committee at Presbyterian-St. Luke's Medical Center in Denver, Colorado, and director of GUIDe (Guidelines for Use of Intensive Care in Denver, now called Colorado Collective for Medical Decisions). I hear many stories about care that might be considered futile. But during the 10 years (in three different cities and in many practice settings) that I have been interested in this topic, I have yet to find a doctor who thought that he or she had lost control because of unbridled patient autonomy. Those who claim futility is about control are probably not practicing medicine.

Futility is not about doctors short-circuiting communication. I can recall no instance where a doctor made a futility claim because he or she didn't want to put in the time and sweat to work things out with patients and their families.

Futility is not about defining what might possibly work and what, given current technology, will never work. Defining physiologic futility would be a Pyrrhic victory. I also don't know any doctors who want to do the physiologically impossible.

Futility is not a subterfuge for rationing. The need for cost control has certainly given impetus to the futility debate, but we don't need to hide behind "futility" in order to be good stewards.

Then what is futility? It is, in the broadest sense, a step toward defining the goals of medicine.[4] The futility debate is essential to changing our culture so that health care will be affordable and accessible to all our citizens. In a recent *New England Journal of Medicine* essay, George Annas discussed the need for new metaphors of the goals of medicine. The military metaphors and the market metaphors no longer (and perhaps never did) serve us well; ecologic metaphors are more appropriate. Annas says, "The ecologic metaphor could, for example, help us confront and accept limits (both on expectations about the length or our lives and on the expenditure of resources we think reasonable to increase longevity), value nature, and emphasize the quality of life. This metaphor could lead us to worry about our grandchildren and thus to plan for the long term, to favor sustainable technology over technology we cannot afford to provide to all who could benefit from it, to emphasize prevention and public health measures, and to debate the merits of rationing."[5] The futility debate is one piece of this cultural evolution.

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Should we scrap the use of the word because its meaning can be confusing? I don't think so. Granted, we must be careful with it and should use other terms when they better reflect our ideas and goals, but we shouldn't scrap futility. It's a strong word that can help advance the public dialogue.

In Denver we use "futility" and add that truly futile care (we haven't tried to define truly futile care—at least not at this point in the dialogue) is not our main concern. Our main concern is inappropriate care, something that is much more common than truly futile care. Our Adult Intensive Care and Neonatal Intensive Care subcommittees[6] are designing tools to help us more clearly distinguish inappropriate care. These tools consider many factors: 1) pre-morbid life expectancy; 2) severity of acute illness; 3) resources used for the acute illness; 4) resources expected to be used for the chronic illness; 5) expected mental status; and 6) role of risky behaviors in the genesis of the illness. Other factors may be important in determining appropriate intensive care, but we have chosen a few to help us begin the dialogue.

Lessons From Colorado

"I believe North Carolina is ideally positioned to take the lead in developing community policies, particularly for the southern and eastern parts of this country."

Based on our experience with GUIDe, I offer the following 10 suggestions to communities developing futile care policies.

1) *Begin modestly.* An office manager working half-time can pull the professional community together to begin the discussion. A budget of $30,000 to $40,000 will cover the manager's salary, meals for the meetings, and other expenses. Contributions from hospitals, hospices, nursing homes, and other health care-related institutions can get you started.

2) *Be bold.* Everyone has a stake in this debate. Businesses, government, organized religion, foundations, and individual benefactors are appropriate targets for fundraising efforts. Bringing the community together for a sustained period of time will require significant resources. Most interested parties know that the community, not the federal government, will design successful health care reform. Many will want to contribute. Just ask.

3) *Use professional mediators.* At first, a mediator may have to donate his or her time. When the organization can afford the mediator's fees, it should pay them. It is money well spent because the futility debate can be emotionally charged and a professional mediator can defuse frustration and anger. Most importantly, good mediation leads to good compromises.

4) *Build a foundation with nurses.* Nurses provide most of the hands-on care. If treatment is inappropriate, doctors can distance themselves from its direct provision. Nurses can't. Since nurses are more likely to feel the inappropriateness of treatments, they are more likely to get involved in the beginning of the community conversation.

5) *Look for new legal solutions.* The fear of litigation is, I believe, a major obstacle to implementing futility policies. Grant money allowed GUIDe to hire a lawyer to develop non-judicial means of conflict resolution and to consider legislative proposals to protect providers who follow the guidelines developed by the community.

6) *Encourage creativity.* The process for developing community consensus will likely be different in different cities. Likewise, the content of the policies will probably be different, at least in their early stages. We cannot expect uniformity given the unique politics, history, and culture of different communities. Leaders in Durham should not expect those in Winston-Salem to follow their blueprints.

7) *Collect data.* Data won't solve the problems. The futility debate is not about numbers (though numbers play an important role). It is a debate about values. Don't let a reliance on data distract people from the tough job of debating values, but use data from local hospitals to encourage professionals to follow guidelines.

8) *Think politics.* Wouldn't it be nice if rational conversation would solve the futility problem? It won't. And wouldn't it be nice if the best of ethics, medicine, law, theology, and sociology led to community consensus or at least to good compromises. Unfortunately, it may not. There's no way around political battles. The right-to-life groups will need to sit at the table with the Hemlock Society. Even though no amount of ethical discourse will make them agree on everything, a good deal of savvy politics may help them compromise on many issues.

9) *Be open to outside help.* We in Colorado eagerly await progress in North Carolina. We will learn from it. Other communities will have lessons that benefit all of us.

10) *Be patient.* We're looking at a cultural shift. Our country is young, and the rugged individualism that is its foundation will not readily accommodate a more communitarian ethos. A long, often tedious process is probably necessary if the community is to have ownership of its guidelines.

A Fortunate Position

I believe North Carolina is ideally positioned to take the lead in developing community policies, particularly for the southern and eastern parts of this country. It is the right size and has a good mix of large and small cities. It is as open to new ideas as any neighboring state.[7] It is home to some of the best investigations of patient outcomes[8] and patient/physician preferences,[9-11] the kind of research central to the futility debate. Its universities will be active participants. It has the ethicists to help shape the debate.[12-15] Finally, it has already started. As an outsider glimpsing the future of community policies in North Carolina, I am impressed with its potential...and a bit envious. ❑

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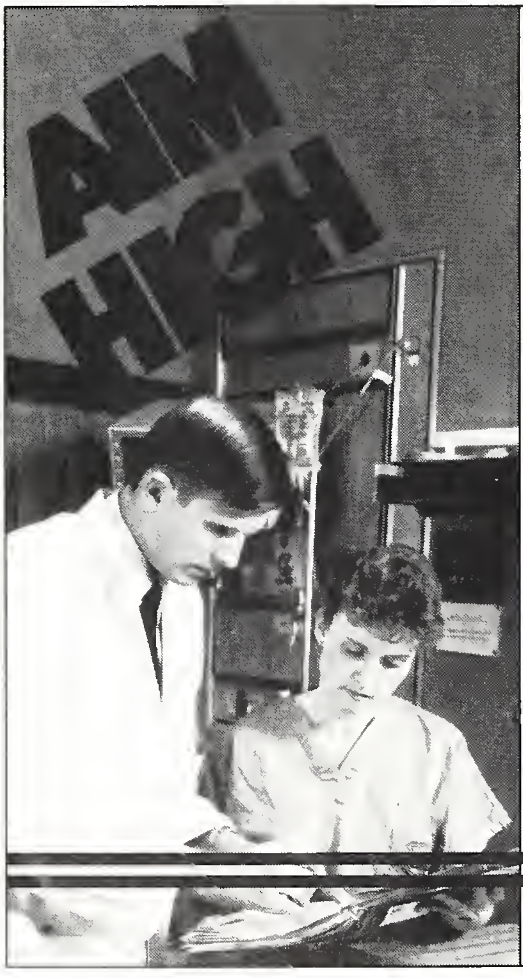

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Commentary

by John Glasson, MD

The AMA's position on "futile care" is stated in Opinion 2.035 of the 1994 Code of Medical Ethics: "Physicians are not ethically obligated to deliver care that, in their best judgment, will not have a reasonable chance of benefiting their patients. Patients should not be given treatment simply because they demand [it]. Denial of treatment should be justified by reliance on openly stated ethical principles, and acceptable standards of care, as defined in Opinions 2.03 and 2.095, not on the concept of 'futility,' which cannot be meaningfully defined."

The GUIDe program Dr. Murphy describes seems consistent with the AMA's belief that it is important not to get into problems of defining futile treatments, but rather to emphasize the beneficial care of patients. This effort to develop clinical guidelines for this care in Denver has gone well because it incorporates various opinions as to how to best use those guidelines to contain the costs of medical care, particularly near the end of life.

GUIDe is based on the assumption that there needs to be multidisciplinary support for societal policy in medical decision-making. Special concerns by legislators, the uninsured, and the economically disadvantaged are quite evident in the development of these guidelines.

Even with guidelines, in rare instances decisions on futile treatment will have to be resolved by court order. But armed with the opinion of medical consultants, I feel that physicians who discuss such matters with families and competent patients are best supported by hospital ethics committees rather than by hospital administrators quoting "hospital policy." After all, in most cases, the physicians in our hospitals and intensive care units can agree on optimal care for their terminally ill patients without third-party intervention. It is the infrequent, but well-publicized "horror stories"—Nancy Cruzan, Helga Wanglie, and Baby K—that require court orders for their resolution.

However, converting guidelines into law or regulations with the force of law has many disadvantages. I doubt that this would gather broad public support.

The rapid advance of medical technology and treatment emphasizes how much we need mechanisms for continued development of new medical and ethical criteria over time. In this way, physicians will be best able to provide beneficial care to their patients. ❑

Dr. Glasson chairs the AMA's Council on Ethical and Judicial Affairs. He is an orthopedic surgeon in Durham and a past president of the NCMS.

Real Futility

Historical Beginnings and Continuing Debate About Futile Treatment

Lance K. Stell, PhD

Should physicians have discretion to limit treatment choices on grounds of futility? A burgeoning literature addresses this question, yet the opinions of commentators vary markedly. The *futilitarians*[1] (Table 1, at right) claim that futility is not only a legitimate concept, but one indispensable to medical thinking.[2-4] Futilitarians argue that physicians have a unique role in determining when futility justifies stopping treatment.[5,6] The *anti-futilitarians* (Table 1) say that futility is a vague, subjective, value-laden concept that masks questionable uses of physicians' power.[7-11] Anti-futilitarians argue that physicians should not use futility as a rationale for stopping treatment.[12-15] Indeed, one prominent anti-futilitarian has gone so far as to argue that physicians cannot make any distinctive contribution to determinations of futility.[16] The great futility war rages on.

The challenge of limiting treatment on grounds of futility is not a problem-child of modern medical technology. To show this, I review Plato's discussion of the problem in *The Republic*. Then I offer some definitions and distinctions to clarify the battle positions in the great futility war. I join the battle myself on the futilitarian side.[17] Specifically, I defend a rule-futilitarian view which recommends openly institutionalizing the concept of futility so that its role in medical decision-making can be made more open, fair, and reasonable. I argue that the anti-futilitarians are mistaken to claim that the concept of futility is dispensable. If we can agree that *efficacy* is a concept essential to medical practice, then we must also agree that its logical complement (futility) is indispensable too. If so, the concept of futility cannot be banned as the AMA demands.[11]

But if we cannot ban the concept, we might, for reasons of sensibility, avoid calling it by its name, as some commentators have suggested. Perhaps they think that a rose (or skunk) called by another name might smell sweeter. Thus they suggest substituting less harsh (hence less pungent) terminology such as "medically inefficacious," "medically unreasonable," "medically inappropriate," "medically contraindicated," and "medically disproportionate."[18,19] But by favoring implicit over explicit use of futility they would sacrifice honesty to avoid offensiveness. They can ban futility from the medical record, but its conceptual indispensability will secure it a place in medical thinking all the same.

Table 1. Futility: a lexicon

Futility: An effort that fails (or would fail) utterly of the desired end through intrinsic defect.

Principle of futility (permissive version): A physician has no obligation to initiate or to continue a futile effort (but it may be permissible for him or her to do so in certain circumstances).

Principle of futility (prohibitive version): A physician must avoid initiating or continuing a futile effort.

Futilitarianism: The belief that the principle of futility states a valid basis for physicians' decision-making. Someone who accepts this belief is a *futilitarian.*

Act-futilitarianism: The belief that the responsible physician should be at liberty to apply the principle of futility directly to individual treatment decisions as his or her experience and judgment indicate.

Rule-futilitarianism: The belief that applications of the principle of futility should be mediated by openly adopted, institutionalized rules to ensure good medical review of medical judgments that appeal to futility and proper respect for patient rights.

Anti-futilitarianism: The belief that the principle of futility is not a valid basis for physicians' decision-making. Someone who accepts this belief is an *anti-futilitarian.*

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On the other hand, since the concept of futility cannot be banned, we can favor open, explicit use of it but insist on fair disclosure of how institutions review physicians' decisions to stop treatment in its name. This strategy favors honesty over euphemism.

The nature of the options determine how medical ethicists—philosophers, lawyers, physicians, social workers, nurses, ministers, and other health care workers—can contribute to the great futility war. In my opinion, ethicists should be even-handed, not two-handed. An even-handed ethicist aims at clear thought and fair argument but is not indifferent as to which ethical position prevails (honesty vs sensibility). An even-handed ethicist does not confuse taking a position and pressing for its adoption with usurping other's prerogative of choice.

A two-handed ethicist, like Harry Truman's two-handed economist, or the non-directive counselor, wants value neutrality. Neutrality suggests (wrongly) that any alternative is as choice-worthy as the others, that preference is arbitrary or driven by self-interest (which, if true, requires an argument of its own and is not a foregone conclusion). The two-handed ethicist's strategy promises "clean hands," and hand washing does require two hands, but a policy of "clean hands" abandons the field to those less distressed about the costs of advocacy and compromise.

Futility and the Goals of Medicine: An Ancient Controversy

The principle of futility ("There is no obligation to make a futile effort") has provided a rational basis for circumscribing medical obligation since the time of Hippocrates[20] and Plato.[21] Plato saw clearly that the controversy is not with the principle of futility but with what constitutes the proper goals of medicine, for those goals provide the grounds for applying the principle.

In Book III (pp 406-8) of *The Republic*, Plato critiques rival conceptions of medicine's goals.[21] The protagonists were Herodicus, an innovator, and Aesculapius, son of Apollo, who first brought the healing arts to society. Herodicus was a man "of sickly constitution" who "by a happy combination of training and doctoring found out a way of torturing first and chiefly himself, and secondly the rest of the world...by the invention of a lingering death; for he had a mortal disease which he perpetually tended, and as recovery was out of the question, he passed his entire life as a valetudinarian; he could do nothing but attend upon himself...and so dying hard, by the help of science, he struggled on to old age." Herodicus' medical goal was solely physiological (to prevent death). We can infer his criterion: Any measure that delays death is not futile.

Plato criticized Herodicus for abusing science. His medical philosophy promoted selfishness and an immoderate focus on the body's condition, indulged irrational fears of death, and was preoccupied with the wrong goal—living long rather than living well. Plato says that Herodicus misidentified medicine's proper enemy, which is ethical (living poorly), not physiological (death). Plato described Herodicus' position as one that tortured the rest of the world as well as himself, so we can infer that seeking a "lingering death" must have been somewhat popular, especially among those who could afford it.

Aesculapius opposed Herodicus' vitalism and valetudinarianism, not because he was old-fashioned, not because he hadn't kept up with physiological developments, but because "he knew that in all well-ordered states every individual has an occupation to which he must attend, and therefore has no leisure to spend in continually being ill...[in such societies, a good citizen] sees no good in a life which is spent in nursing his disease to the neglect of his ordinary calling."

Aesculapius' medical goals were functional (social and political) and psychological; his criteria for applying the principle of futility were too. He withheld treatment from "bodies which disease had penetrated through and through...[because] he did not want to lengthen out useless lives...[on the contrary, Aesculapius believed that] if a man was not able to live in the ordinary way, he had no business to treat him; for he would have done no good either to the man himself, or to the State." Aesculapius' students perpetuated these values and "would have nothing to do with unhealthy and intemperate subjects, whose lives were of no use either to themselves or others; the art of medicine was not designed for their good, and though they were as rich as Midas, the sons of Aesculapius would have declined to attend to them."

According to Pindar, Zeus struck Aesculapius with a lightning bolt because he accepted a bribe to resuscitate a rich man (a god-like power which Herodicus could not command). Ironically, Aesculapius, the god of medicine, the doctor who *really* could "do everything" suffered the ultimate sanction for betraying his own principles.

Opposing conceptions of medicine's goals distinguish the willingness of Herodicus and Aesculapius to use their medical powers. Herodicus valued life *per se* and fought to hold physical death at bay as long as possible. Aesculapius valued social and political function and psychological life; life's value was not absolute but contingent, derived from its ability to sponsor other values.

We have no contemporary proponents of views as uncompromising as those of Aesculapius, but the quality of life/quantity of life controversy divides us still. Its ancient roots, its persistence, its intractability to rational resolution suggest that it has nothing special to do with our modern predicament. The healer's power has been much enlarged, is more state-regulated, and treatment more expensive than in Plato's time, but the clash between a position that values even the most marginal life-minute and one that does not, is as stark as ever. There is a lesson here. No matter the appeal of social consensus, it is wishful thinking to hope for it. Nevertheless, decisions must be made, consensus or not.

A Lexicon of Futility

A definition of "futile." The Oxford English Dictionary says a "futile" effort "fails utterly of the desired end through intrinsic defect; [making it] useless, ineffectual, vain." "Futility" comes from the Latin *futilis* ("leaky"), which links the term to Greek myth. Aeschylus, in his *Supplicants*, tells the story of Danaus, King of Argos, and his 50 daughters (the Danaides). Military expediency forced him to agree to a mass wedding of each daughter to a foreigner (against her will). Danaus gave each daughter a dagger, and suggested that each inflame the passions of her eager bridegroom, then strike lethally to avoid being ravished. Except for one disobedient daughter, all murdered their never-fulfilled husbands. The gods condemned the killers to Hades where they were required forever to carry water in sieves (or eternally pour water into a bottomless vessel in an attempt to fill it). In any case, their efforts were "futile." Greek myths tell many tales (Sisyphus, Tantalus) of wrongdoing punished by damnation to a futile labor.

By definition, efforts are futile because the ends to which they aim are unattainable. Filling a bottomless vessel (as in the paradigm case), discovering the greatest positive integer, squaring the circle, and trisecting an angle are all inherently unattainable, the first two more obviously so than the latter two. Only significant mathematical sophistication shows that the circle cannot be squared (Thomas Hobbes thought he had done it until the Oxford mathematician Wallis rudely proved otherwise[22]). It is impossible to trisect an angle using straight-edge and compass, but the futility of the project is not immediately apparent.

In the case of inherently unattainable ends, efforts to achieve them are futile *per se*, and we can predict the futile outcome with complete certainty. Some ends *seem* unattainable (spinning gold from straw), but individuals with unique skills prove otherwise (Rumpelstiltskin). Literature has always prodded us to consider whether certain goals (time travel; stopping the aging process; achieving bodily immortality) are inherently or only contingently unattainable, limited by knowledge and skill.

Some ends are unattainable (or exceedingly unlikely) because the chosen or available means are not efficacious. Prolonging resuscitation beyond 45 minutes may not be futile if our goal is to restore circulation, but at present they are futile if our goal is to preserve the sensorium. Of course, new drugs that delay or reverse the effects of cerebral ischemia would change our judgments about the futility of cardiopulmonary-cerebral resuscitation.

The principle of futility. This principle states that it is not obligatory to make futile efforts. It follows, therefore, that refraining from futile efforts is permissible. It does not follow that refraining from futile efforts is obligatory.

Any obligation to avoid futile efforts must be found in some other principle; for example, a principle which says physicians who knowingly make futile efforts are frauds and pervert their art. Avoidance of futile efforts becomes thereby a matter of professional integrity, which may be how Hippocrates saw things. He advised students "to refuse to treat those who are overmastered by their diseases, realizing that in such cases medicine is powerless."

Futilitarianism. This school of thought holds that the principle of futility is a valid action guide. It distinguishes discretionary from prohibitive versions of the principle, accounts for why the principle is valid, and delimits by whom and under what conditions it may be applied. Futilitarianism forms part of any theory seeking to regulate means-vs-ends thinking, but for reasons I will explain below, the prohibitive version of the principle is not required.

Medical futilitarianism. Since the practice of medicine is goal-directed, judging the comparative efficacy of treatment is always relevant to medical thinking. Thus futilitarianism must be part of any general theory of medical obligation. Whatever goals we assign to medicine, they must give us a way to evaluate the efficacy of treatment vs non-treatment. Only in light of medicine's goals can we judge an intervention efficacious and useful or, at the limit, useless and futile. Measures having no efficacy (as judged by medicine's goals) sometimes seem the same as doing nothing but strictly speaking, this is not true.

An adequate theory of medical futilitarianism must take into account the need for cooperation of not-necessarily-willing others (physicians, other caregivers, hospitals) and the consumption of resources not solely the property of the one who requests the futile effort. It must specify epistemic standards (such as "futile by clear and convincing evidence" or "futile beyond a reasonable doubt") for applying the principle in circumstances of conflict.

Medical futilitarianism permits us to refrain from futile efforts, but need not forbid them. If it does, it should explain why. Such an account might appeal to medical integrity ("Giving treatments known to be futile is fraud") or to principles of justice ("It is wrong to waste scarce resources in futile treatment").

Medical act-futilitarianism. This theory says that the principle of futility should be applied clinically on an *ad hoc* basis, at the discretion of the physician personally responsible for its use, because only one directly caring for the patient is in a position to know all the nuances and idiosyncrasies calling for choice. Act-futilitarianism rejects rules or algorithms for applying the principle of futility and rejects review of those applications as meddling intrusions into the doctor-patient relationship. If challenged, act-futilitarians are confident that medical colleagues will vindicate their judgment.

Act-futilitarianism is the refuge of those who claim that medicine's professional obligations are set solely by physicians themselves. Aesculapius' act-futilitarianism called for halting treatment when the patient's disease had irreversibly impaired his ability to carry out social functions, or when chronic illness so preoccupied him that he could think of little else. Hippocrates' act-futilitarianism was similar. Today, act-futilitarianism shows itself most clearly in circumstances of imminent demise or of permanent unconsciousness.[23]

Medical rule-futilitarianism. This theory says that the principle of futility should be applied only according to openly adopted policies.[24-26] Rule futilitarianism may favor certain means of implementation (by hospitals,[17] by groups of hospitals,[27,28] by courts,[14,29] or by the state[30]). Rule-futilitarians think that faithful following of openly adopted regulative procedures ensures that the principle of futility is applied according to epistemic standards, promotes good communication between affected parties, minimizes confusion of futility with other reasons for action, and minimizes rights violations. Rule futilitarians often deny physicians sole jurisdiction over medicine's goals[31] since the rightness of a decision to stop treatment, on grounds of futility and over a patient's or representative's objections, depends on using openly adopted, fair policies.

Anti-futilitarianism. This theory states that the principle of futility is not a valid action guide, at least for some decision-makers such as physicians (but not patients or their representatives). Recent anti-futilitarian literature argues that physicians should not use the principle of futility because they have varied understandings of it,[32] they lack distinctive expertise in the use of it,[16] they use wrong epistemic standards in applying it,[33,34] they confuse futility with rationing,[23] they do not perceive clearly its normative character,[35] or they use it to discriminate against the handicapped.[9] Some of the allegations may be correct, but similar charges could be made about other problematic concepts such as "guilt beyond a reasonable doubt."

Judges' grasp of the concept of guilt is no tighter than physicians' grip on futility. The concept itself is laden with moral as well as legal values, is somewhat subjective, and given the same facts, some judges would find guilt where others would not. Judges operationalize the epistemic standard for juries using markedly different criteria ("75% certain" or "95% certain") including qualitative criteria ("feel sure and certain").

One state Supreme Court has insisted that guilt beyond a reasonable doubt is an inherently qualitative concept, and reversed a trial court verdict because the judge interpreted the standard of proof quantitatively.[36] Too, jury members vary substantially in their understanding of guilt and how to apply the epistemic standards for determining it.[37] Not only that, the ancient right of *jury nullification* puts jury members at liberty to indulge their subjectivity and confusion.[38] The accused, the professional criminologists, the forensic psychiatrists all add to the dissonant chorus proclaiming what guilt really means. Does this mean that until we have consensus we should suspend use of the concept of guilt? Or abandon the moralistic paradigm for a therapeutic one?[39]

Comparatively little anti-futilitarian literature looks at abuses of the principle by patients' surrogates,[9] and virtually none focuses on abuses by patients. Suppose a patient thinks further treatment is futile and her physician disagrees. Must she bear the burden of persuasion? Most commentators think not. The principle of patient self-determination implies that a competent adult patient who is steadfast in thinking a recommended treatment will fail, bears no burden to persuade anyone else, and no burden to meet some particular epistemic standard.

Timothy Quill's leukemia patient, Diane, rejected aggressive care because she was convinced it would fail.[40] In fact, she was "certain" it would kill her despite a 25% chance of cure. Quill does not say that Diane used "futility" in her rationale for rejecting treatment, but his account clearly suggests that she based her refusal on her "certainty" that it would not prolong survival. Arguably, Diane used (abused?) the concept of futility and (mis)applied the principle of futility without ever mentioning the word.

Futility and Benefit

Commentators often link futility to the concept of benefit, either by claiming that non-beneficial treatments are futile or that futile treatments are non-beneficial.[41] This has led to controversy as to whether "futile" means producing no *physiological* benefit or no benefit *to the patient as a whole*. In fact, both sides are mistaken to link futility with non-benefit. By definition, a futile effort fails to produce its desired end from "intrinsic defect." It is the desired end that is in question.

One who undertakes a futile effort is condemned to frustration and failure. But it does it follow from the definition that futile efforts are not worth making. Don Quixote's quest was unachievable, his efforts futile. Still, the lasting popularity of Cervantes' story shows that tilting at windmills can be enchantingly heroic although futile and pathetic. We should distinguish commitment to a goal for its own sake from commitment to successfully reaching a goal. The former is worthwhile, and clearly expressed in futile circumstances. Indeed, unwavering commitment to the highest ideals and an indomitable will are most apparent when efforts are known to be futile. It is wrong to say that futile efforts cannot be worthwhile.

Futile efforts, when undertaken voluntarily and expressing the agent's will, can ennoble the doer and inspire others. On the other hand, when futile efforts do not express the agent's will, the frustration attending them can range from mildly annoying to punishing, and all the more so when there is no foreseeable endpoint. Recall the Danaides, Sisyphus, and Tantalus.

Symbolic Utility

Since by definition futile efforts cannot produce their desired ends, they become worthwhile only when, by serendipity, they are associated with other, desirable states or because of the *symbolic character* of the futile gesture itself. The latter has an air of paradox about it. How could a futile effort, by definition useless and vain, have symbolic utility? Robert Nozick's discussion of "symptomatology" is pertinent: "One mark of an action's symbolic connection to an outcome that plays a central role in the decision to do it…is the persistence of the action in the face of strong evidence that it does not have the presumed causal consequence."[42] An important clue to an action's symbolic utility is the person's determination to do it despite good evidence of its futility!

Physicians' failure to appreciate the symbolic character of actions and their ignorance of the symptomatology of those acts often leads to hasty and false judgments about the person who insists on making a futile effort (and is therefore either "irrational" or "in denial"). Nozick says: "Since symbolic actions often are *expressive* actions, another view of them would be this: The symbolic connection of an action to a situation enables the action to be expressive of some attitude, belief, value, emotion, or whatever."[42] Nozick's point seems especially applicable to medical contexts. Indeed, he cites Charles Fried's suggestion[43] that the symbolic meaning of "feeding someone" colors our ideas about the permissible ways of ending the lives of direly ill patients (it's "okay to withhold the respirator," but "not okay to withhold a feeding tube").

We can expand on Nozick's point. Interventions that the patient desires because of their expected efficacy (that is, the likelihood that they will produce a remission of disease) may come to symbolize important attitudes and so express intrinsic value. When this happens, interventions may be desired not only despite, but even because, of their inefficacy, especially when there is no alternative. For example, not all end-stage cancer patients who refuse do-not-resuscitate (DNR) orders and insist on receiving "everything" including additional cycles of nauseating radiation and chemotherapy, are necessarily "in denial." They may know that the efforts are futile. Rather than hoping (irrationally) for marginal life-minutes, their demand for continued aggressive treatment may symbolize their rejection of certain attitudes (resignation, despair) and the expression of will ("never, never, never give up!"). The symbolic utility may be so great that emphasizing the medical futility is self-defeating. Ironically, when there is no efficacious alternative ("I'm sorry, there is nothing else we can try"), symbolic utility is *contingent* on futility.

In some circumstances, the patient's desire to continue a treatment may strengthen as evidence of its futility mounts.[4,44] This phenomenon is often seen as motivated by ignorance, confusion, or mistrust. Indeed, Schneiderman et al[4] regard it as anti-rational, analogous to the silly thinking of the long-odds gambler ("I've been losing all night, the odds are bound to turn in my favor!"). But symbolic utility need not involve ignorance, confusion, miscommunication, or fanciful beliefs about causality. On the contrary, symbolic utility attaches to the "expressiveness" of an action rather than its imagined causal tendencies. Admittedly, distinguishing magical thinking from symbolic utility can be hard. However, since significantly different attitudes toward the patient (respect, or condescension, or indulgent disrespect) hinge on the distinction, we need to make the effort.

It is not necessarily irrational to know that an effort is futile and still want to do it. When physicians recognize this, they better appreciate why resuscitation status can be so contentious. Cardio-pulmonary resuscitation (CPR) is not just any old treatment with a dismal success rate. Patients and their families see it symbolically (as do physicians and nurses). It is self-deceptive to think otherwise. Competent patients who are designated as DNR tend to be regarded and to regard themselves differently. Symbolism may be the reason a patient or family decides to rescind a DNR order, not an (irrational) expectation of recovery or a slide backward into denial.

Recognizing that patients may invest futile treatments with symbolic utility can enhance our respect for the complex way values operate in the context of treatment. Asking someone to give up a demand for treatment known to be futile may be asking them to abandon deeply held values. Depending on the magnitude of the investment in symbolic utility, dissuasion will be more or less difficult. However, if futile interventions can gain symbolic utility, they can also lose it, especially when their other features become apparent. Rather than futility, we should stress an intervention's *efficacy* at bringing about *unwanted* results, although pursuing this strategy without manipulation is a challenge. Patients and their representatives have limited energy to invest in symbolic utility. Displaying an indomitable will is exhausting. Unless provoked, few patients can sustain it for long.

Since last-line futile treatments can be symbolically worthwhile, and since physicians generally want to provide worthwhile care, they should not reduce the futility debate to a power struggle over estimates of treatment "efficacy." Symbolic utility encourages an expanded role for what Jonsen has called "proportional advocacy."[45] In fact, the futility debate must consider whether physicians have a duty to provide futile interventions that have symbolic value for the patient or family.[46] Respecting the patient means respecting his or her capacity to bestow symbolic utility, but it does not require ceding to the patient unlimited dictatorial power over other's lives and resources. The Confucians said three years was an appropriate period for mourning one's parents, not because there was anything inherently good about the time frame, but because it is right at some point to stop symbolic displays of grief. Confucius himself recognized that the principle (which both endorsed and limited symbolism) was more important than the particular time period assigned.[47]

The Pragmatics of Futility

Consider the following:

- Physicians increasingly face limits on the treatments they may offer patients.
- Patients, too, face limits on what treatments they can get, even if they insist.
- Some of these limits have been, and will continue to be, based on futility.

No one contests the truth of the first two claims. They are near-clichés. Insurance companies restrict physicians' care-plan options, and clinical practice guidelines restrict physician and patient choices. Making health care delivery more efficient means eliminating inefficacious and marginal interventions. Implicit use of the principle of futility cannot be kept out of this process. Which version of the principle will it be? One commentator has speculated that, *de facto*, it will be the prohibitive version.[48] Indeed, the less explicitly the principle of futility is used, the more likely it is that the prohibitive version will be used implicitly. Then respect for the symbolic utility of last-line futile treatment becomes less likely, if not impossible.

On the other hand, clinical guidelines that explicitly use the principle of futility gives us a chance to distinguish its two versions, a chance that the complex value issues surrounding futility may be appreciated. The permissive version with a flexible deadline might be suitable for circumstances in which futile treatment is most likely to be invested with symbolic utility—the last stages of terminal illness and permanent unconsciousness. The prohibitive version might be used in less dramatic, less contentious circumstances.

The prospects for open, explicit use of the principle of futility in hospitals are already clear. Many hospitals have already adopted policies and procedures to address conflicts about futile treatment. More will do so in the future. Most current policies say physicians have no obligation to offer or to continue treatment determined to be futile (the permissive version of the principle). Various sorts of medical and non-medical review ensure full disclosure to the patient, assure that the determination of futility is made according to the standards of good medical practice, and acquaint the patient with the right to seek alternative medical supervision.[49,50]

Current policies typically allow physicians to determine what to do once their judgment of futility is validated. They do not command treatment to stop ("Sorry, but they won't let me..."). Some physicians want more than this, but Don Murphy[27] has noted two common weaknesses of such policies: 1) failure to announce that the prohibitive version of the principle of futility has been used when CPR is denied to patients who have virtually no chance of living; 2) failure to specify clear stopping-points when treating patients with extremely poor prognoses in intensive care units.

Murphy may be right about CPR. It is a special case. For irrational reasons, a physician's order is currently required to *prevent* CPR, regardless of the patient's prognosis. Physicians usually seek consent before ordering invasive procedures, but with CPR it has become customary to seek consent to withhold a procedure which has never been "offered."

CPR is special in another sense. We know more about its outcome than about most interventions.[31,51] We know a great deal about its lack of efficacy in patients with certain medical conditions. So why not prohibit its use in those patients? Isn't it fraudulent to perform and bill for a procedure we know won't work? Isn't this what quacks do?

Consider the following hypothetical case. A patient with end-stage liver disease persists in wanting CPR despite knowing that the procedure will be futile. For the sake of argument, suppose that certain explanations of her choice (such as denial or irrational long odds gambling) do not apply. She has invested the procedure with symbolic utility, regarding it as her final expression of defiance in death's face. Suppose she has purchased a "SymboliCare" rider to her health insurance so she does not extract a subsidy for her decision from the others. Should hospitals still have policies that forbid compliance with her request? This might seem to be a contest between medical integrity and the patient's symbolism, but it really isn't. The physician has made it clear that CPR will fail; the procedure will not be performed under false pretenses. It will amount to helping the patient spit in death's face. Professional integrity does not forbid that, provided the doctor bills for what is done.

It might be argued that since the patient wants CPR merely to express an attitude with which she deeply identifies, a mock resuscitation would be good enough. The patient wants show and that's what she should get. To do more risks committing fraud, which medical integrity opposes.

Conclusion

I believe that a rule-futilitarian position is better than an act-futilitarian. It ensures that the concept of futility is appropriately clarified, that futility is separated from other reasons for withholding intervention (frustration, resource rationing), that permissive and prohibitive versions of the principle of futility are clarified, and that good epistemic standards are respected in applying the principle.

I believe that the ability to invest futile treatments with symbolic utility suggests that futilitarians should adopt a permissive version of the principle of futility (stopping treatment is discretionary, within limits). The key question then becomes when to stop, not whether. The challenge is to devise appropriate epistemic standards for circumstances in which patients or their representatives are likely to invest last-line treatment with symbolic value, and to set fair time-limits for respecting symbolism.

How to pay for symbolically valuable care is a legitimate question. "SymboliCare" riders on health insurance policies is one way. More importantly, if patients or families are supported, not patronized when they request last-line futile measures, they may more easily accept reasonable limits on their symbolism. Or even accept "No" for an answer.[52] ❑

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FOR PATIENTS

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

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Staying Healthy

EXERCISE AND OLDER ADULTS

Walton W. Curl, MD

Contrary to popular belief, the physical decline associated with old age is not a direct result of the aging process. Every year more evidence supports the theory that the lack of physical activity causes much of the frailty in older adults.

It's true, however, that as we get older, we do tend to become less and less active. In a 1995 survey, *Prevention Magazine* reported that only 26% of adults 65 and older exercise regularly—three times a week. Adults who were the most active were those under 40. But older adults, once they begin to exercise, reap the positive effects more quickly than younger adults do. Exercise can help the body repair, maintain, and improve itself to an amazing degree. Since inactivity can contribute directly to heart disease, hypertension (high blood pressure), arthritis, diabetes, and osteoporosis (a bone-thinning disorder common in older women), it makes sense for seniors to exercise regularly.

The benefits of exercise

❍ *Physiological benefits*

The major organ to benefit from an exercise program is the heart. Physical activity makes the heart become a stronger and more efficient pump. Exercise can increase the level of good HDL cholesterol, while decreasing the bad LDL cholesterol, associated with an increased risk of heart disease. In addition, exercise can control blood pressure. The body's ability to regulate blood sugar is helped by regular exercise, thus preventing diabetes. In women in particular, weight-bearing exercise such as walking, can lessen the amount of bone mineral that is lost with age. This bone

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mineral loss can lead to osteoporosis.

Exercise also increases flexibility, enhances stamina, and helps control weight, which, in turn, lowers the risk of certain cancers, particularly cancer of the breast, colon, and uterus.

Psychological benefits

Exercise makes life more enjoyable. It improves self-confidence, keeps one socially active, and eases depression. These psychological benefits are important to older adults who often must cope with difficult situations such as the death of family members and friends, financial hardship, and loneliness. Vigorous activity is a natural outlet for the body when it is under such stressful situations. It is important to control stress, since it has been linked to heart disease, depression, ulcers, and high blood pressure.

Three types of exercise

It is important to know the differences between three major types of exercise: stretching, strength training, and aerobic.

Stretching

Since muscles tend to lose their elasticity as they age, it is important to stretch to prevent them from becoming short and tight and to help maintain flexibility. Stretching can also help slow down the progress of arthritis, one of the most common and painful diseases associated with aging. Stretches should always be gentle and gradual. Don't bounce, but rather stretch just to the point of resistance, and then hold the stretch for 10 to 20 seconds. If the stretch hurts, you are pushing too hard.

Strength training

Increasing strength may be the most important exercise for older adults because adequate strength is crucial to functioning independently. Strengthening exercises enhance muscle tone and endurance, play an important role in strengthening bones, and slow the progress of osteoporosis. And strong muscles heal faster after an injury, but older adults who are strong experience fewer falls and other accidents. Strengthening activities include lifting weights, squeezing balls, and doing push-ups and sit-ups. If you are considering a weightlifting regimen for the first time, make sure you consult your doctor for advice about the proper program. Improper lifting or lifting too much weight at one time can cause injury.

The best all-around aerobic exercise for older adults may be walking.

Aerobic exercise

Aerobic exercise improves the efficiency of the cardiovascular system: the heart, lungs, and blood vessels. Some people worry that aerobic exercise will increase their heart rate and use up heartbeats. Actually, aerobic exercise will cause your heart to beat slower when you are at rest, making it pump more efficiently, not more often. The word aerobic means that during an activity, the oxygen you create balances the oxygen your body expends for energy. Aerobic exercise builds good muscle tone, improves reflexes, enhances balance, burns fat, and strengthens bones. Outdoor activities such as walking briskly, jogging, and swimming, and indoor activities such as riding a stationary bike or doing an exercise video are all aerobic in nature. Even everyday duties like vacuuming or raking leaves provide some aerobic benefit.

The best all-around aerobic exercise for older adults may be walking. It can be done almost anywhere or anytime, doesn't require special skills or expensive equipment, and has the lowest rate of injury of any form of exercise. To get the full benefit of aerobic exercise while walking, make sure you are walking briskly enough to break a sweat and increase your heart rate.

Planning an exercise program

Before you start exercising, see your doctor to evaluate your physical condition. People with medical problems may have to avoid some types of exercise or adjust the level of activity. But even people with serious medical conditions or disabilities and those confined to a wheelchair can take part in some form of exercise. Your doctor can help you decide which activities will be suitable, and will check your progress after the exercise program is underway.

> *To prevent muscle stiffness and soreness, stretch for several minutes, because warm muscles stretch easier and better.*

To ensure that you will continue with an exercise program, it is important to choose those activities that you enjoy. Alternating several different activities makes a program more enjoyable and easier to stick with. Do you prefer to do activities alone or with a group of people? Would an additional person motivate you to stay with the program? Do you prefer exercising indoors or outdoors?

Before you begin your workout, warm up with about five minutes of stretching and low-level aerobic activity, such as a slow walk.

Aerobic activity should be the cornerstone of your exercise program. Start slowly, possibly by exercising in short periods of about 10 minutes two or three times a week. Then build up by adding a few minutes each week until you are exercising for 20 to 30 minutes three to four times a week. Do some strengthening exercises a couple of times a week as well.

After your workout, spend a few minutes cooling down with slow walking to slow the heart's pumping. To prevent muscle stiffness and soreness, stretch for several minutes, because warm muscles stretch easier and better.

Injury prevention

All exercise involves a few aches and pains. This is especially true for those who have been inactive for a long period of time since the body is being asked to do something it is unaccustomed to doing. Injuries are simply a part of physical activity, but you can reduce the risk of one through common sense and preparation.

Don't do too much too soon. Don't push your body to do more than it is ready to do. Warm up before you exercise, and cool down completely, with stretching, afterward. Drink plenty of liquids, preferably water, before, during, and after exercising, especially in hot weather, and don't exercise in extremely hot or cold weather.

Pay attention to what your body is telling you. If you feel a lot of discomfort, ease up or take a break; you are probably trying to do too much. Most people don't experience problems if they start exercising slowly, but beware of unusual

symptoms like chest pain, breathlessness, or abnormal joint and muscle discomfort. Call your doctor if any of these occur.

Finding an exercise program

Older adults can join classes or take part in fitness programs at senior centers in most North Carolina communities. Your local health department, a community college, church, or organizations such as the YMCA or YWCA are also good resources.

The North Carolina Senior Games offer health promotion and educational programs for people age 55 or older. Local Senior Games offer older adults the opportunity to participate in a variety of sports and recreation events each spring in 49 communities throughout the state. Participants can qualify for the Senior Games state finals held in Raleigh each fall.

SilverStriders and SilverLiners are also sponsored by the North Carolina Senior Games. SilverStriders, a walking club for people age 50 and older, offers a log book to keep track of your progress, incentive awards, an annual report of progress, and a newsletter. SilverLiners is a statewide senior line dancing association offering workshops throughout the year. For more information on these programs contact the North Carolina Senior Games (919) 851-5456. ❑

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Ethical and Legal Barriers to Futility Policies

Nancy M. P. King, JD

In broad terms, a "futility policy" addresses disagreements between health care providers and their patients (or patient representatives) about the provision of treatment when health care providers do not wish to provide treatment that the patients (or their representatives) want. But what do we mean when we say a treatment is "futile?" There are many reasons for labeling treatment "futile," but they usually cluster around "not medically indicated" and "not worth it."

Definitions of "futile" range from "it won't work" to "this money is better spent elsewhere," to "doing this isn't medicine." One dichotomous formulation distinguishes "quantitative" from "qualitative" futility. Quantitative futility addresses treatment that has so little likelihood of success that it is "not worth it." Qualitative futility focuses on what quality of life is worth the expenditure of time, energy, and resources to preserve. Another dichotomy contrasts medical with social and community judgments about futility, calling the latter value-laden but the former driven solely by data. And these are only some of the ways "futility" is currently used in the literature.[1-10]

For the purposes of this essay, the way we define "futility" is less important than the extent of a futility policy's authority. Is such a policy an appropriate vehicle for denying treatment to a patient who wants it? Obviously, that question cannot be fully answered without attending to the definitional problem, but definitions need not come first. Without specifying a definition, I want to consider the significant ethical barriers—and real legal concerns—in the way of establishing and using futility policies.

Finally, I think it important to point out that, definitions aside, we have to be extraordinarily careful in our choice of language when we address the problem of futility. Two particular expressions trouble me very much. The first is the phrase "futile care." We should all agree that care is never futile; only treatment can be futile. All patients, whether or not they receive maximal treatment, should always receive maximal care. Thus, all discussion should be about "futile treatment." I'm also troubled when patients or their representatives are said to "demand" treatment. It is true that sometimes patients or their representatives request treatments that have not been offered by physicians. The word therefore may be literally applicable, but it is a loaded word, portraying patients and families as selfish, unreasonable, incapable of reason, hostile, and hence undeserving. It prejudges the situation, and I would like to see it dropped from discussion.

I will consider ethical barriers first. I do this simply because in medicine, law follows ethics, rather than the other way around. Good practice sets the standards that produce good health care law. When we get to the legal issues later, I hope that it will be a little more clear where the laws come from and how they fit—as long as we remember that law, like medicine, doesn't have all the answers.

Ethical Barriers to Futility Policies

Disagreements about futility have two aspects: I) they are disputes about authority, since the authority to determine the course of treatment must ultimately come to rest somewhere; and 2) they represent differences in perspective that often, if not always, involve values.

The "trumping" problem, related to issues of authority, is a serious ethical barrier to futility policies. The issue of futility is too often reduced to a duel between the patient's autonomy and the doctor's professional integrity—a duel that somebody has to win. If there must be a winner, then there is competition from the outset, and a futility policy can too easily become the trump card. Only those futility policies that are very difficult to use as trumps have any hope of working well. Good policies focus instead on procedures for identifying disagreement and requiring discussion of issues, and are accompanied by provider education on taking and using time to talk.

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Treatment decisions made by patients and their representatives involve their moral perspectives on the value of life, the nature of a "good death," the meaning of medical intervention, and many other deep-seated values. The treatment decisions of health care providers are similarly value-laden, but differ in perspective and in the values they invoke—the avoidance of suffering, the primacy of medical training and judgment, and fair distribution of scarce resources. The principles of the autonomy of the patient and informed consent suggest that the appropriate way to address differences in perspective and values is for physicians and patients to engage in mutually respectful discussion and education.

A good futility policy encourages and requires physicians and other health care providers to raise the issue of futility with patients and their representatives; promotes thorough discussion of the limits of medical treatment and the probable impact of requested treatments; provides for appropriate referral to hospital ethics committees; and, when necessary, facilitates transfer of the patient to the care of another willing provider. A bad futility policy purports to give health care providers unilateral authority to deny treatment without requiring discussion and an explanation of the value of the proposed course of action. Futility policies should not be easy to use, and should make talking with patients and their representatives unavoidable.

Power disparity in the doctor-patient relationship is the real trump card in treatment decision-making. What worries me most in the futility debate—what worries philosopher Ruth Macklin,[11] health lawyer Giles Scofield,[12] and others—is that just 20 years ago most physicians strenuously resisted patients' and families' refusals of treatment. When forced to consider patient autonomy, some physicians turned 180 degrees and used the same trump card—the integrity of medical judgment—to resist patients' and families' requests for aggressive treatment. What's more, some physicians have shown little sensitivity or willingness to listen and discuss their decisions, whether they are insisting on aggressive treatment or aggressive non-treatment.

Health care providers' resistance to genuinely shared decision-making is a significant ethical barrier to progress in the futility debate. As evidence for this contention, I note that every day, patients and families still have to fight for acceptance of their valid refusals of treatment at the end of life. At the same time, other patients and families fight to continue life-sustaining treatment.[13,14] The common denominator in both fights is physicians' desire for ultimate decision-making authority. The solution to both is shared decision-making. The challenge to physicians and patients is to find ways to discuss openly the extremely difficult, sensitive, and emotional issues of dying while they maintain mutual respect and tolerance for differences in viewpoint and values. Patients and their representatives would rather not think about death, and health care providers are poorly trained to talk about it.[15,16]

Far too often, both sides suffer from a common fallacy about autonomy: that assertion of a right to do something means an end to discussion. Health care providers (and patients and families) need to remember that honoring the patient's right to decide doesn't mean that discussing the issues, the options, and the evidence constitutes interference. Quite the contrary. The patient's autonomy is protected and promoted by discussion of decisions within the patient's moral community of decision-makers.[17] Physicians who stay out of the family's way until things are going badly and "something needs to be done about the situation" are stepping in too late, and may have actually contributed to the problem.[18] Patients and physicians must recognize that having the right to do something doesn't mean that what they seek to do is right. We must learn to conduct moral conversations about the way both patients and providers exercise their rights in making health care decisions. And we must learn, although it won't be easy, to make those conversations respectful and productive, rather than threatening and challenging.[19]

Enforceable futility determinations are unfair unless we have a clear and consistent standard that applies to everyone. The upshot of my futility-talk model is that some patients and representatives—perhaps most—will learn from their physicians and be persuaded by evidence and argument that continued treatment is not the right decision.[20] Others, of course, will not. Deep differences in fundamental values, such as the unshakable belief that all life has value, may persist. Individual physicians may be unable to overcome in a short time the influence of decades of medical "triumphalism." Consequently, some families will be unable to give up the belief that medicine can accomplish anything. Despite this, I believe strongly that dialogue is necessary. We must tolerate outcomes with which we disagree in order to protect and promote the best and most mutually respectful decision-making. But we must also consider the possibility that in some cases, unilateral action by physicians might be appropriate and in accord with professional standards.

I believe that professional standards about end-of-life issues cannot exist independently of patients' values and preferences. The power to practice medicine is a public trust. So long as patients want aggressive treatment, professionals must be responsive. Professionals may—indeed, they should—exercise their educational authority to help convince patients and the public of their views, but always they must respond.

From the Quinlan case in 1976[21] to the Supreme Court's 1990 Cruzan decision,[22] courts have consistently held that patients have a fundamental right to refuse treatment. However, for 20 years the courts, the experts, and the public have been ducking a related fundamental question: How should conflicts between the values of patients and professionals be resolved? In Quinlan, the court noted that fundamental rights could be overcome by compelling interests such as "the integrity of the medical profession." If the profession as a whole considered its helping role to prohibit withholding or withdrawing treatment, any conflict with the rights of patients could be resolved only in ways that didn't require physicians to act against professional values. The Quinlan court said, however, that no such compelling interest existed in that case because many physicians agreed that withdrawal and withholding of treatment was appropriate. Thus, the profession did not speak with one voice on the issue.

Many, if not most, instances of futile treatment seem, like the Quinlan case, to involve more than one voice. An individual physician who does not wish to continue invasive treatment with no reasonable prospect of benefit may have excellent grounds for transferring the patient's care to another physician. But the physician might also benefit from serious consideration of the patient's different view of the meaning of benefit, the role of suffering, and fighting the specter of approaching death.

In his astute analysis of the Baby K case, George Annas argues[23] that if physicians cannot speak with one voice about such cases, they can no more claim a professional standard of care about futile treatment than they could about withdrawing treatment in the Quinlan case. Annas proposes that the proper medical response to disputes about futility is to refuse to begin aggressive treatment and defend the action in court later. That would be consistent with a univocal professional standard, but very hard to endorse without the certainty that no other physician would judge the situation differently and that all substantially similar situations would be treated the same way.

> "The power disparity between providers and patients makes it unfair in many cases for providers to refuse to honor a treatment request and then invite patients and families to take them to court about it."

Let us assume for a moment that there are some "futility cases" about which we could find professional agreement. Can we then specify a standard to be applied fairly to all appropriate cases? I see two significant barriers to fair and equal application of futility policies. First, the power disparity between providers and patients makes it unfair in many cases for providers to refuse to honor a treatment request and then invite patients and families to take them to court about it. I am reminded of the Linares case, in which the father of a permanently unconscious toddler disconnected his son's respirator, holding hospital staff at gunpoint, after the hospital said "We will not withdraw treatment, but you are welcome to go to court and make us." The hospital's posture in that situation was widely condemned.[24]

Hospitals have legal counsel. They have power and money and knowledge of the system that patients and families do not. It is their responsibility to help patients and families bring legitimate disputes before the proper authorities for final disposition. This of course includes inviting caregivers and families to bring the discussion to the hospital ethics committee.

Second, there is a real risk that futility policies will have a disproportionate impact on the poorest and most disenfranchised patients and families. The Linares family was ethnically, culturally, and socioeconomically very different from their son's hospital caregivers. It is always easier for doctors to talk with and respond to patients who are socially and culturally more like they are. For example, the overwhelming majority of women who have been required to submit to enforced treatment for the benefit of their fetuses or future fetuses (ranging from orders to perform cesarean sections to the implantation of Norplant to prevent pregnancy) have been women of color, indigent women, and women for whom English is a second language.[25] Many futility disputes that arise in hospitals in North Carolina and across the nation involve patients and families who are black. Some research has begun to demonstrate that blacks are more likely than others to want aggressive treatment at the end of life[26,27]—treatment that providers are likely to label futile.[28]

Even if some patients are not being treated differently by providers, there is a real possibility that even an unbiased application of a futility policy will have a disparate impact on ethnic, cultural, or religious minorities who desire aggressive end-of-life treatment. This disparate impact could constitute discrimination.[29] When patients are also indigent, and have already suffered from insufficient access to health care, the potential injury is compounded.

Providing futile treatment won't make amends for injustices suffered by patients in the past or outside the hospital. However, in our current health care system, refusing to provide marginally beneficial treatment will not save money that can be used to meet the health needs of the disadvantaged, in or out of the hospital. Justice requires that futility standards be set by society as a whole, not solely by health care professionals. We must give due attention to the needs and interests of those who disagree with the majority and we must facilitate the appropriate redistribution of "saved" resources, not only within the hospital but, perhaps even more importantly, outside, before the need for hospitalization arises.

Are There Legal Barriers to Futility Policies?

Medical malpractice, abandonment, and discrimination against minorities or people with disabilities are the most potentially significant legal issues raised by futility policies. None represents a clear barrier, as long as physicians are held appropriately accountable for their actions.

The Baby K decision is not a legal barrier to invoking "futility" in making treatment decisions. Known in court papers and media reports as Baby K, Stephanie Harrell was born at Fairfax Hospital in Falls Church, Virginia, on October 13, 1992, and died there on April 5, 1995. She was born with congenital absence of the cerebral cortex and cranial vault but had enough brain stem function that she required only intermittent ventilatory assistance. Her mother expressed a strong religious belief in the value of all human life, and asked the hospital to provide aggressive support, including ventilation when necessary. The hospital went to federal court asking that it not be required to provide the requested services. The district court disagreed, asserting, based on a number of federal laws, that the hospital had a duty to treat Baby K.[30] The Court of Appeals affirmed the lower court's decision, relying on only one law, the Emergency Medical Treatment and Active Labor Act (EMTALA, the federal "anti-dumping law" designed to ensure that hospitals not turn patients who are unable to pay away from their emergency rooms[31]). The US Supreme Court declined to hear an appeal of the decision.

The Baby K decision is bad law. It reflects a wooden and excessively literal reading of EMTALA; but that statute makes sense only if physicians are empowered to exercise medical judgment about when treatment is medically indicated. However, even if allowance for medical judgment is read into EMTALA, it isn't entirely clear that decisions about treating an anencephalic infant fall appropriately into the realm of medical judgment alone. Periodic ventilation was effective in keeping Baby K alive for two and a half years. Whether it is right to keep alive a body without consciousness, without prospect of awareness, without sight, hearing, or any sensory input other than some reflexes is a question better left to societal or individual determinations than to medicine.

Nonetheless, since the Court of Appeals that ruled in this case has jurisdiction over North Carolina, the Baby K case represents a valid judicial precedent for this state, but only in cases involving minors. Nothing should be extrapolated from the Baby K case to any other situation involving disagreements about the "futility" of treatment. EMTALA does apply to all patients and potential patients seeking emergency treatment, but decisions affecting adult patients are also governed by another federal statute, the Patient Self-Determination Act,[32] which protects patients' decision-making rights while potentially preserving opportunities for physicians to object, in conscience, to participating in certain treatments.

We must not read Baby K wrong. The risk posed by the Baby K decision is that it will make health care providers wrongly think that they are required to treat aggressively all anencephalic infants. Baby K requires only that providers accede to parents' requests for aggressive treatment if, after thorough and sensitive discussion of the medical information and the physicians' recommendations, irreconcilable disagreements remain between parents and caregivers and no alternative care arrangements can be made. The Baby K case provides strong motivation for early, collaborative discussion between caregivers and families about how to serve the needs and values of all parties. Providers must resist any temptation to perceive "demanding" families as adversaries from the outset.

Other potential legal barriers remain, even if Baby K is not at issue. Futility statutes or policies usually state that health care providers are not required to prescribe or render treatment that they deem medically or ethically inappropriate, and that patients are permitted to request only treatments that conform to accepted medical standards or to reasonable medical judgment. What do sweeping, imprecise terms like these mean? When should they apply? Can they be applied fairly? What if physicians disagree among themselves, as is likely? (And remember, we have not tried to define "futile," or to separate "quantitative" from "qualitative" futility.)

> "General legal doctrines of medical malpractice and abandonment, and constitutional questions about the potentially discriminatory effects of futility determinations, are likely to be the battlegrounds on which futility disputes are fought."[33]

General legal doctrines of medical malpractice and abandonment, and constitutional questions about the potentially discriminatory effects of futility determinations, are likely to be the battlegrounds on which futility disputes are fought.[33] Claims of medical malpractice involving futility are likely to address situations in which physicians provide some treatments, or comfort care, but not other requested services, such as long-term respirator support or kidney dialysis; or those in which a unilateral do-not-resuscitate order is in place. At issue in such cases would be whether the failure to provide the requested treatment fell below the standard of care and caused the patient's death. Quite naturally, in many cases neither would be true, but in other cases the existence of a univocal standard of care would be difficult to establish.

A claim of abandonment might arise if a patient were refused requested treatment and the physician withdrew from the case without transferring the patient's care to another physician. Traditionally, abandonment law has focused on whether a physician-patient relationship was established. Fear of getting stuck in situations they can't get out of has made many health care providers and institutions reluctant to accept transfer of what George Annas calls "ethical hot potatoes." Abandonment law does recognize that physicians who make reasonable efforts to extract themselves from bad relationships with patients and to secure alternative sources of care for their patients shouldn't be stuck with them forever, but in practice many patients near the end of life really cannot change caregivers easily. One thoughtful health lawyer, Barry Furrow, suggests that the narrow legal equation of a formal relationship with an individual provider's duty to treat is beginning to broaden, so that insurers, institutions, and communities may have a collective duty to address the health needs of patients who request marginal, expensive, or otherwise difficult-to-provide treatments.[34] Such a broadening of providers' responsibilities suggests a future increase in patients' responsibilities, once they become members of communities from which they receive real benefits and in which they have a genuine voice.[35]

Conclusions

I do not suggest that it is right to provide, without question, useless treatment to patients. I do not believe that doctors are patients' puppets. Instead, I want to make three fundamental points:

1. Patients (or their representatives) deserve from their physicians the opportunity to make informed, thoughtful, and responsible decisions about treatment. Doctors must be effective teachers and must support patient autonomy. Discussions of futility need to be handled in this way, and futility policies should have this focus, not an enforcement goal.

2. There is a lot of room for disagreement about the proper goals of medical treatment, the meaning of the terms used in the futility debate, and how to weigh the risks and possibilities of benefit in health care. We have to struggle with differences in values and perceptions, and we have to decide, both individually and as a society, how best to accommodate the interests of patients and physicians.

3. Providers must be extremely cautious about, and maximally sensitive to, the effects of futility policies on the health care system and on the balance of moral authority between providers and patients. There are many serious questions to address. For example, although the cost of treatment is often (loosely and incorrectly) invoked in discussions about futility, there is little reason to believe that futility policies will save money and even less reason to expect that any savings will be redistributed to provide others with necessary treatment, preventive services, or basic care. At a public policy level, discussion of futility should further our ability to make informed and thoughtful choices about the importance of health care and how to provide and pay for it for North Carolinians. ❑

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Official Call
House of Delegates

House of Delegates Meetings Scheduled

Notice to:
Delegates, Alternate Delegates, and Officials of the North Carolina Medical Society, component medical societies, and specialty societies

Sessions of the House of Delegates will convene at the Pinehurst Resort and Country Club, Pinehurst, NC, at the following times:

Friday, November 10, 1995 - 8:30 am - opening session
Sunday, November 12, 1995 - 9 am - second session

A member of the Credentials Committee will be present at the Meeting Registration Desk on Thursday, November 9, 1995, from 3-5 pm, and Friday, November 10, 1995, from 8-9 am, to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegates must wear their badges to be seated in the House of Delegates.

Reference Committee Hearings

Reference Commitee hearings are scheduled to begin:

Friday, November 10, 1995 - 2 pm

Thad B. Wester, MD, President
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Futility Policies and the Law

Mark A. Hall, JD

Two kinds of legal issues arise from policies that define futile treatment: 1) liability from developing the policies; 2) legal risks from implementing the policies. The resulting list of legal concerns is quite long. Here I briefly mention some of these to provide a cursory, undocumented sense of their significance.

Risks for Policy Developers

Those who develop futility policies may need to be worried about either antitrust or general tort liability, even if they will not be responsible for implementing the policies. Antitrust concerns arise when futility policies recommend that a particular drug or device not be used or paid for, resulting in economic harm to the manufacturer. Also, if a policy diminishes the role of one set of practitioners or elevates the role of another, economic turf battles within the profession can be expected. Nevertheless, such antitrust threats do not appear to be serious. The motivation for creating futility policies should not be *primarily* economic, and certainly not anticompetitive; the motivation should be a desire to establish appropriate and prudent standards of care. Even if the policy-makers come from many, even all, institutions in a community, this should not lead to the policy-making process being viewed as a "conspiracy" or "combination" if it only puts forth recommendations and leaves individual hospitals and insurers free to decide for themselves whether to adopt and implement the policy. However, if each home institution immediately adopts the policy following the development session, there may be an inference of "tacit conspiracy" or implicit agreement among the policy-makers to enforce the recommendation. Antitrust law encourages disagreement since it tends to be more forgiving when action is not uniform.

Developers of futility policies conceivably could be sued under the general tort law of negligence if a patient or family believes the policy caused harm. This would require a finding that the developers owed a duty of care to the patient in their deliberations. However, courts are reluctant to attribute such responsibility for fear this would deter voluntary efforts to improve public welfare. A number of precedents would protect participants from suit despite the technical legal risk.

Risk to Policy Implementers

Several concerns arise in the context of implementing futility policies. The most obvious is medical malpractice. The issue is not so much whether a futility policy will increase malpractice exposure. It would if failure to follow the policy caused harm, but this is not likely to be the case. Instead, the issue is whether complying with a futility policy will offer a safe haven from suit. The answer is: probably not much of one. The argument in favor of a safe haven is that, because the law respects the medical standards of the community, the explicit definition of an actual community standard should be given conclusive weight. This is a good argument, but is untested. It could fail for a number of reasons, not the least being that the impact in court of any particular piece of evidence depends on the demeanor of the witness who presents it. It is highly unlikely a judge will simply take note of the existence of a futility policy and dismiss a suit as a matter of law. Before a jury, a plaintiff's lawyer might argue that: 1) the community that developed the policy is not the same as that which defines the legal standard; or 2) the policy does not purport to document actual medical practices but rather to change them. My personal belief is that both arguments should be rejected. The law recognizes the validity of alternative medical practices, so long as they are followed by a "respectable minority." However, unless a state adopts legislation giving special legal weight to medical practice guidelines (as now exists in Maine, Florida, and Minnesota), these issues will be hashed out in front of a jury.

A second issue relates to the clash of patient autonomy and provider autonomy. The particular branches of legal doctrine are too intricate to explain in detail, but they fall under the headings of informed consent, the law of abandonment, and the general law of contract. It is difficult to argue that futility

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policies can be implemented without at least disclosing their existence and consequence to the affected patients. However, it is plausible to argue that, once disclosed, they can be implemented unilaterally, despite patient objection. Courts recognize that providers have the right to define the limits of their practice and refuse certain procedures (such as abortions) out of personal conviction. The problem is that most futility policies relate to end-of-life settings that are considered emergency situations with special legal obligations. Noteworthy here is the decision by the Fourth Circuit Court (which governs North Carolina) in the case of Baby K.[1] The Court ruled that refusing life support for an anencephalic infant violates the federal law against patient dumping. Therefore, although individual doctors may assert futility policies, at present, institutions have a binding legal obligation to offer any life support that is technically effective in the short term.

A third issue pertains to various laws regarding handicap discrimination, most notably, the Americans With Disabilities Act.[2] This law was invoked by the lower court in the Baby K case,[3] and was used by the Bush administration to strike down the initial Oregon Medicaid rationing scheme. The logic is that offering different treatments based on the severity of the medical condition discriminates against patients according to their degree of disability. This may sound absurd, since differential treatment is precisely the goal of medicine, but the logic of the disability laws was not conceived with the allocation of health care resources in mind. This body of law is enormously threatening to the validity of all attempts to rationalize and systematize medical treatment. The threat is lessened by the fact that the legal remedies provided by the law are primarily injunctive, but there is some exposure to the possibility of large monetary damages.

Finally, it is intriguing to observe that one law specifically refers to the futility concept. The Baby Doe regulations,[4] which are generally quite "pro-life," mandate the treatment of infants with severe birth defects, but they also state that treatment need not be continued when it is "inhumane or virtually futile." This law might seem to be an open invitation to define futility in explicit clinical terms, but any such definition would apply only to severely handicapped newborns. The Baby Doe regulations govern child abuse protection services; they do not empower the community to define medical futility generally. The Baby Doe regulations arise in a legal context that assumes the family wants to stop treatment, and they threaten revocation of federal funding if state authorities do not intervene.

Although Baby Doe regulations are not directly relevant, their history does shed light on the topics under discussion. Originally, the regulations were written under a version of the disability discrimination law, a version that the Supreme Court struck down[5] as inappropriate to the nature of the problem. This initial misstep might serve as a useful reminder of the inappropriateness of using the Americans With Disabilities Act to police medical decision-making.

A Note of Optimism

On balance, it is difficult to offer much assurance about the existing legal climate regarding futility policies. At least one note of optimism can be sounded, though. The strongest legal threats apply to the implementation of futility policies by institutions, not to their development by individuals. The best way to highlight the need for legal protection may be to develop one or more compelling policies and then to observe the legal obstacles (if any) that bar their implementation. Such development efforts are under way in scattered locations throughout the country. I hope that North Carolina will join this vanguard. ❑

Author's note: For a more comprehensive discussion of relevant sources of law, see Symposium on Medical Futility, Seton Hall Law Review 1995;25:873-1026.

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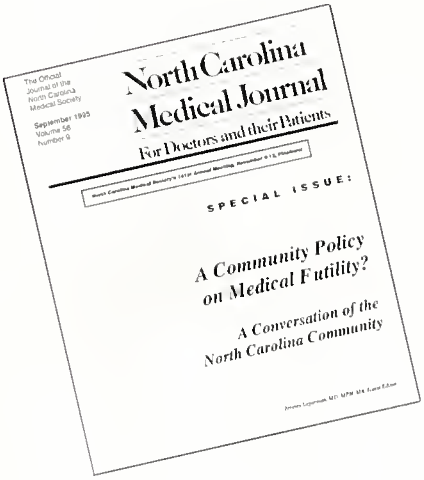
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The Legislative Role in Defining Medical Futility

David G. Warren, JD

The question of whether public policy on medical futility should be defined by legislative action will probably become moot. The 50 state legislatures have shown little reluctance to take up issues of death and dying, producing an abundance of policies ranging from paternalistic prescription of detailed procedures for executing living wills to general declarations of the rights to a natural death and to refuse CPR.[1]

Are Legislatures Or the Courts More Responsive?

It is debatable whether public policy has been well served by legislative deliberations on death and dying, but many would argue that having a disseminated community standard provides consistency and common expectations among the public. Legislatures are uniquely positioned to promulgate such community standards, although those who favor judicial activism say that courts do a better job of balancing the interests of various stakeholders and making policy based on real cases. This kind of debate is not confined to issues of death and dying but is repeated in a variety of contexts, such as the protection and use of the environment, with no decisive answers. Perhaps the separate roles of courts and legislatures are both essential to public policy deliberations, particularly those as vital as whether the physician or the patient (or society) has ultimate responsibility for prolonging life or not.

Regardless of viewpoint, there is no denying that state legislatures dominate the regulation of medical practice and definition of patients rights. Considerable enacted legislation affects medical decisions about death and dying.

Laws Affecting Death and Dying

Three kinds of state laws establish policy controlling time and manner of death for incurable and terminally ill persons.

Living wills and health care powers of attorney. After the celebrated 1976 Quinlan case, most states enacted legislation authorizing individuals to declare in advance their desire for a natural death.[2] This sort of legislation permitted the creation of "living wills." Typically, these simple legal documents, when signed in the presence of witnesses by a competent adult, request that extraordinary care not be administered should the signer in the future become incompetent and determined by a physician to be incurably and terminally ill. Some states have specifically included or excluded nutrition and hydration as "extraordinary," provided for automatic expiration of the living will after a period of time, or made various procedural requirements such as having the signature notarized. These conditions reflect legislative micromanagement of issues in which many legislators have a personal interest.

As in most states, North Carolina currently has both a "Declaration of a Desire for a Natural Death" statute[3] (called a living will statute in other states) and a "Health Care Power of Attorney" statute,[4] which permits a surrogate to make decisions about a patient's medical care toward the end of life.

Regulation of do-not-resuscitate (DNR) orders. A number of states have recently considered legislative proposals regarding DNR orders. North Carolina does not have any pending legislation, but several other states are considering bills to regulate the physician practice of giving DNR orders (Connecticut), to authorize patients to "instruct" physicians to refrain from cardiopulmonary resuscitation (Georgia), or to provide a document to prevent emergency medical personnel from initiating resuscitative procedures (South Carolina).

The Connecticut proposal is a model of simplicity. It will provide that: 1) If a person is clinically dead or upon request of a person who is terminally ill or such person's legal guardian, and after counseling such person or guardian, the person's attending physician may issue a DNR order with respect to such person if both parties agrees such order is appropriate, 2) such order shall be signed by the physician and such person or guardian, 3) such order shall be valid for a specific period of

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time not to exceed six months, 4) such order shall be kept in a location readily available for inspection by emergency medical personnel and, if the person is in a health care facility, shall be made part of the person's medical record, 5) the person shall wear a bracelet indicating that a DNR order has been issued, and 6) the office of emergency medical services shall adopt regulations concerning the issuance of DNR orders.[5]

The flurry of legislative proposals regulating DNR might be considered redundant since the practice of giving DNR orders with patient or guardian consent has not been the subject of liability suits since a seminal 1978 court decision in Massachusetts validated the practice.[6] Nevertheless, because of widespread publicity about "slow codes," "pencil DNRs," "purple dots," etc., a 1988 New York statute prescribed how DNR orders were to be written and set the default position that "every person admitted to a hospital shall be presumed to consent to the administration of cardiopulmonary resuscitation."[7] Only when the patient was unable and a surrogate unavailable could a physician give a DNR order, which was to be limited to cases in which "to a reasonable degree of medical certainty, resuscitation would be medically futile."[8]

The focus on cardiopulmonary resuscitation as different from other life-sustaining procedures is perhaps explained by its dramatic effects, particularly as portrayed on commercial television. From a legal perspective, it is the only procedure that is routinely applied without the consent of the patient and is generally initiated without an order of a physician.[9] Nevertheless, it is only one of the medical procedures at issue in a discussion of legal advice on medical futility.

Similar legal questions about medical futility could be raised about organ transplants, risky surgical procedures, use of experimental or off-label drug regimens, and alternative medicine therapies. Here the medical team rarely confronts considerations of consent, therapeutic privilege, conformance with customary standards of care, parity of parties in contracting, even antitrust issues. There may be implicit awareness but seldom direct, prospective discussion with the patient or family of the legal implications in such cases. Economic questions also should be raised but have been, until recently, even less directly addressed. The energy of public policy debates has been most noticeably directed at liability and how to diminish it or defend against it. Most political energy is spent on tort reform, both at the federal and state levels.

Physician-assisted death. There is a movement in some states (not currently in North Carolina) for laws to regulate "physician-assisted death." In Oregon, Washington, and California referendums to legalize physician-assisted suicide were put on the statewide election ballots. This method of determining state policy was criticized in a well-publicized article[10] as overly subject to influence by well-heeled interest groups and overly simplified by referendum wording. Neither petition-initiated solutions nor judicial activism has provided the clear criteria, rigorous procedures, and adequate safeguards that the legislative process produces. Therefore, the authors of the article proposed that state legislatures create policies to regulate physician-assisted death that would achieve the following objectives: 1) promote comfort care as standard treatment for dying patients, 2) permit physician-assisted death only for competent patients suffering from terminal or incurable debilitating illnesses who voluntarily and repeatedly request to die, 3) develop practice guidelines for lethal treatment only as a last resort for unrelievable suffering, 4) provide oversight of physician-assisted death, 5) create a dispute-resolution mechanism for difficult cases, and 6) ensure public accountability.

Only in Oregon was the referendum successful. Oregon's Measure 16 became law by popular vote in November 1994 (without legislative action) and provided that under certain conditions physicians may prescribe drugs intended to cause death for persons diagnosed as terminally ill. However, on August 3, 1995, a US District Court in Oregon issued a declaratory judgment and permanent injunction voiding the measure as being unconstitutional under the equal protection clause of the 14th Amendment. In a related development, the US Court of Appeals for the 9th Circuit in March 1995 overturned a lower court ruling that declared unconstitutional Washington's statutory prohibition against assisted suicides. In August 1995, however, the 9th Circuit decided to rehear the case, raising the possibility that the assisted suicide prohibition could ultimately be removed or restricted, perhaps allowing for physician-assisted suicides in Washington unless the state legislature enacts new clarifying legislation.

Despite referendum activity, no state legislatures have yet enacted such a statute, perhaps because of the unfavorable publicity attached to the issue by the bizarre behavior of Dr. Jack Kevorkian.[11] Despite the lack of support for Kevorkian-style deaths, there is a relatively widespread, not-so-secret practice of physician-assisted death which has aroused neither public concern nor liability suits.

Prospects for Legislating Public Policy on Medical Futility

Community policies on medical futility can be established in many ways. Besides litigation and legislation, professional standards can be developed through education programs, hospital protocols, and professional codes of ethics. In recent years hospital ethics committees have gained a stature that allows them to specify normative practices and outline institutional culture. Management of care both through HMOs and utilization review contracts has stimulated the questioning of efficacy and the cost of various treatment modalities. These questions change practice patterns. In short, numerous forces in the health delivery system have influential roles, both contradictory and reinforcing, in shaping professional standards and practices.

Legislative attention given to living wills, DNR orders, and physician-assisted death suggests that there may be another wave of proposals in state legislatures to address the question of whether and when to withhold treatment in cases of medical futility. Drafting difficulties are obvious (what is the legal definition of "medically futile"?) and there will undoubtedly be attempts to immunize physicians from liability for offering or not offering various procedures to patients with differing, debilitating, complicated, and compromised prognoses. Many cases will involve newborns rather than aged cancer patients. Some will involve patients with comorbid conditions such as liver disease and alcoholism, or cancer and heart disease. Some will be older, chronically ill patients with little prospect for an active or satisfying life. A few will request a hastening of death in the face of unbearable pain or discomfort.

The pressures for liability protection from physicians facing medical futility dilemmas and from patients' groups wanting to legalize physician-assisted death will invite proposals for new legislation. Such laws might declare that the default position is to always resuscitate and attempt to restore function, or to withhold or withdraw when the prognosis is extremely poor and the patient has clearly indicated resignation. The criterion that nearly all would eschew is a consideration of cost or payment source. Yet in the context of a pervasive managed care environment, it may not be beyond the bounds of rationality to calculate the cost-benefit of particular treatments, such as bone marrow transplants for octogenarians or extensive cosmetic surgery on patients with AIDS.

Some would say that the cornerstone of medical futility legislation should be a presumption of resuscitation or at least a protocol sensitive to a patient's desire for life. Others might suggest that the patient's (or surrogate's) fully informed consent or refusal of treatment is the operational factor. Still others might point out that society has a survival interest in not permitting the few to consume the resources needed for the many, thereby making proposals for limiting the availability of resuscitation and treatment. Whatever the outcome of society's numerous choices, we can expect that state legislatures will be asked to provide the general and prevailing definitions of acceptable medical procedures surrounding decision-making about death and dying. ❑

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Futility Policies from the Caregiver's Perspective

Marion Danis, MD

Caregivers are in a crucial position regarding futility policies because these individuals make the final decisions about whether or not to offer treatments to patients. Physicians are responsible for 80% or more of the decisions that determine health care costs.[1,2] Given their pivotal role, it is important to look at futility policies from the caregiver's perspective. I will consider two major issues: 1) The characteristics that make a futility policy workable from a caregiver's perspective, and 2) how caregivers can work with patients and families if a futility policy exists.

What Makes Futility Policies Workable?

I begin with the assumption that any policy should be as fair and sensitive to the needs of patients as possible. To achieve this, a citizen advisory board should have active input when establishing futility policies. Thereby, when a patient and a physician come to discuss an actual treatment decision, representatives of both parties will have had their say about the guidelines that shape their decisions.

An important question is whether futility policies ought to set uniform therapeutic limits or ought to be encouraged to vary across institutions. If we want a patient who disagrees with a futility policy in a given institution or community to have a real option to seek care elsewhere, then we must encourage the presence of diverse policies within geographically accessible distances. Consider, for example, a demented patient about to be transferred from an acute care hospital to a nursing home. If the policy of the nursing home is to not resuscitate patients with advanced dementia, and if the family disagrees with this policy, then the family will have a choice only if there is another long-term care facility with an alternative policy nearby. Of course, one might argue about the confusion generated and problems posed by differences in standards of care between institutions.

It is also important that futility policies offer some flexibility in the timing of imposed limits. Consider the example of a pregnant woman who delivers an extremely premature infant. If the hospital's policy calls for withholding life support from neonates of very low gestational age on the grounds that treatment of "non-viable babies" is futile, then it is important to allow the parents time to adjust to the decision before stopping life support. Such accommodations are likely to reduce conflict.

The more uncertain the threshold for withholding care, the more likely there will be more disagreement among providers about the appropriateness of the limits. In instance of the last example, if we set limits for life support at a gestational age at which *some* babies might be viable, we will find it more difficult to develop consensus among clinicians than if we set the limits at an age when virtually no fetuses are viable.

Related are the implications of how we define the meaning of "futility" in futility policies.[3] If a policy limits only care that is futile in a strict physiological sense, there will be fewer value-laden disagreements to be resolved. The more policies go beyond this, to define and limit care because a community or institution deems it inappropriate or too expensive, the more we must confront the value-laden judgments intrinsic in such a policy. Value-laden policies bring the hazards of greater disagreement, particularly as patients and providers in a community become more diverse.

An applicable futility policy ought to be made explicitly known to patients or their families early, not only when conflicts have already arisen. Early information will allow patients and families to know that they face the same limits as everyone and may prevent conflict.

Futility policies also require an appeal mechanism that is easily accessible and known to all parties involved in treatment decisions.

A particularly important aspect of futility policies relates to whether caregivers face legal liability when they enforce a policy in the face of conflict with a patient or family. All policies must have legislative endorsement so that care providers will not be jeopardized by adhering to the policy in the face of disagreements. Unless providers are guaranteed legal immunity for withholding care in accord with a futility policy,

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providers cannot be expected to adhere to such a policy when disagreement arises.

Working with Patient and Family

There is much controversy about how to put an institutional futility policy into action. Being an advocate for the patient, being uniquely familiar with, sympathetic, and supportive of the patient's situation are fundamental parts of physicians' (and all caregivers') roles. Will futility policies change that? Will caregivers who practice in institutions with futility policies feel caught between the patient's desires and the institution's policies?* In making decisions in accord with a policy, will they feel conflict with the patient? Will they feel more like an adversary than an advocate of the patient? This is an extremely unfortunate potential consequence of any policy that limits care. Haavi Morreim says that the relationship of physician and patient must change when physicians work in settings in which they are not independent practitioners.[4] To a certain extent, physicians can act as a patient's advocate and give all that they can of personal sympathy, knowledge, and skill, but should act as representatives of the institution when it comes to apportioning institutional resources.

> "...it is possible that providers...can act in keeping with their conscience. Resolving this dilemma depends on the extent to which providers are viewed as free moral agents."

Nevertheless, it is crucial that physicians not abandon a close and sympathetic relationship with their patients. Perhaps one way to preserve such a relationship is to convey the sense that we all face resource constraints together. Patients and physicians alike must share the responsibility of selecting and using the best care possible, but within existing constraints. If this is our shared goal, then an important part of the caregiver's job is to help explain the policy to patients and families. When patients or family members disagree with the policy, the physician ought to try and understand their perspective, and make every effort to preserve the caring relationship.

Another difficult issue pertains to how providers should behave if they personally disagree with the futility policy. Some argue that providers who are employees of institutions with futility policies have a duty, *as employees*, to adhere to the institution's policy. Or, if the futility policy has been adopted by a community, that providers have a duty as members of the community to preserve the community's resources by adhering to the policy despite personal disagreement with it. On the other hand, it is possible to argue that providers who morally disagree with the policy limitations have the right to act in keeping with their conscience. Resolving this dilemma depends on the extent to which providers are viewed as free moral agents.

Concluding Comment

My discussion has focused on the characteristics of futility policies that pertain to caregivers, and the ways in which caregivers ought to respond to such policies. If futility policies aim to limit the waste of medical resources, we must take care, when those policies are established, to recognize and give voice to the different views of patients and providers. We must avoid becoming tyrants of medical decision-making, for the chief role of caregivers is to minister to sick patients. ☐

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* I am indebted to the participants of the Caregivers Workshop for the insights they provided in discussing this topic during the conference. Many of the points written here are the result of our conversation.

Ethical Disputes Over Futile Treatments

Loretta M. Kopelman, PhD

A prevailing wisdom holds that the concept of futility is so confused that we are better off without it.[1] Such assessments misplace the predicaments because the concept is straightforward and useful. Difficulties arise from other sources, such as societal uncertainty about how to allocate or ration health care.

Consider a series of well-publicized controversies about useful or futile treatments. The parents of Baby Doe, an infant with Down's Syndrome and congenital disorders, agreed with the obstetrician but disagreed with the neonatologist about whether corrective surgery was in their infant's best interest;[2] the mother of Baby L, a child with multiple disabilities including blindness, deafness, quadriplegia, and developmental arrest at the three-month-old level, insisted on maximal treatments against the recommendations of doctors and nurses;[3] the family of Nancy Cruzan, a woman in a persistent vegetative state, wanted her feeding tube removed but her physicians did not agree;[4] the family of Helga Wanglie, a woman in a permanent vegetative state, wanted maximal treatment which her doctors and nurses thought futile;[5] and finally, the mother of Baby K, an infant with anencephaly, insisted on maximal treatment despite assurances that this was not standard medical care.[6,7]

Judgments that treatments are medically futile in such contested cases are marked by four necessary conditions:[8]

1. The cases arise in the context of medical treatment, so estimates about what is futile or useful must be **grounded in medical science.** Judgments about diagnosis, treatment, the value of preventive care, and what expectations are reasonable are based on scientific information, including the likely effects of treatments such as relieving pain or prolonging life. If judgments about what is useful or futile are not grounded medically, then the dispute is not about medical futility.

2. Judgments that treatments are medically futile are **value-laden** *and incorporate estimates of whether some goal can be attained, or whether an achievable goal is worth the effort.* For example, even if all agree that maximal treatment will sustain permanently unconscious life for many years, they may disagree about whether this ought to be done. When we ask if something is useful or futile, we need to ask "for what," because what is useful for one person may be futile for another. For example, extending for 24 hours the life of someone in a permanent vegetative state may be futile from the perspective of the patient's interest, but may be useful if it allows the family to gather at the bedside. Such choices are about what we *ought* to do, given what we *can* do.

Established medical goals are important to determining what is medically useful or futile. Medicine's goals include promoting health, preventing illness, diagnosing illness, treating disease, restoring maximal function, relieving suffering, and prolonging life. Since these values can conflict with each other, sometimes it is necessary to make choices about their rank in importance. In some cases the very procedures keeping people alive cause great suffering, and decision-makers must rank the value of prolonged life versus the inflicted suffering. Some hold that prolonging biological life is always the highest goal. Apparently the families of Baby K and Helga Wanglie, and Nancy Cruzan's doctors so valued prolonging biological life that they insisted on sustaining permanently unconscious life. Most doctors disagree with this ranking,[2] as I do. When we cannot agree about ranking values, our disputes about futility or utility may be intractable.

3. Treatments that are judged marginally beneficial are near the **borderline** *between what is useless or useful.* Contested cases are not disputes about whether interventions are absolutely futile (such as eyeglasses for treating a person in a permanent vegetative state), but about the troubling questions of where we should place the dividing line between what is useful or futile. Other countries have clearer social policies about what is considered futile or useful, about where and how

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public funds will be used, and about what doctors can do in borderline cases. For example, the United Kingdom does not value maintaining permanently unconscious life and, in contrast to courts in the United States, would not force doctors to treat an infant like Baby K.[7] Although many of us in this country would agree with such a policy, enough disagree that we have no settled consensus. The conceptual point is that all cut-offs generate borderline cases and the problem does not evaporate with a new threshold, since there are always borderline cases.

***4. Treatment of persons in contested cases is physically, psychologically, or economically* burdensome.** Were they not, treatment would simply be provided. If a patient believes a cool compress helps him, it is not burdensome and we provide it. On the other hand, maintaining unconscious biological life is an economic burden to society and an emotional burden to doctors, nurses, and some family members. Sometimes the patient bears the burden as when parents insist on maximal treatment that causes unnecessary physical suffering.

Since our society has some irreconcilable disputes about how to rank goals, part of the futility debate concerns how to deal fairly and respectfully with disagreements about the extent of our duty to honor different choices, and who has authority to settle disputes. In order to have moral authority, answers to these problems must be clear, consistent, coherent, and comprehensive. They cannot by answered by mere opinion, but only by giving and defending reasons for one's views.

Resolving Disputes

Two approaches to the futility debate give different solutions. If the focus is on disputes between doctors, families, or patients, then the proposed solutions often recommend better communication, information, or discussion of the goals of medicine. When people say "Please, do everything," they may not mean maximal prolongation of technical life, but be asking for good pain control or better understanding of their fears about imminent loss. It is unlikely, however, that all contested cases can be avoided by better communication about goals, since sometimes the disagreements represent genuine disputes about prognosis or the ranking of important values.

On the other hand, some disputes are social disagreements about resource allocation. When society does not or cannot give clear guidelines about how to use costly or burdensome treatments, sharp disagreements result. Disputes about the fair allocation of resources will continue unless our society develops well-understood and widely accepted criteria for their use. For example, given the magnitude of health needs and the limited amount of funds available, there are disputes over the prudence of maintaining people who are permanently unconscious. Some argue that the funds could be used more profitably elsewhere, or regard such actions as idolatry of the physical. Others insist that equal treatment of the most helpless is a mark of a moral society.

"The impact of managed care and health maintenance organizations on such disputes remains to be seen. These social structures may increasingly pit doctors as advocates for their patients against a health care system that does not want to pay for certain treatments."

The impact of managed care and health maintenance organizations on such disputes remains to be seen. These social structures may increasingly pit doctors as advocates for their patients against a health care system that does not want to pay for certain treatments. Third-party payors and insurance companies may set thresholds for the borderline between what is considered useful or futile based on what they are willing to fund, and leave doctors in a quandary about how to deal with too little money to achieve standard care for their patients.

The futility debate is complex because it raises troubling issues about resource allocation, our sense of community, doctors' duties, over-treatment, and under-treatment. Yet it is not the concept of futility that is problematic. The culprit is our reluctance as a society to face these issues. ❑

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Religious Aspects of Futile Treatment

Harmon L. Smith, Jr., PhD

In important ways the institutional religious bodies of the West have been long familiar with—even helped shape—some of the issues associated with and raised by the term, "medical futility." Think of the following points that make this statement tenable: First, modern questions represent novel ways of restating an older set of questions about the distinction between "ordinary" and "extraordinary" means of preserving life. Second, even though it has been the subject of wrenching choices in modern medical care, the third moral maxim of Western medicine—after *primum non nocere* (first do no harm) and the duty to prolong life and relieve pain—holds that physicians have no duty to offer, nor patients any obligation to accept, treatments that are non-beneficial. Third, although the "fact" of death is a medical determination, the "meaning" of death resides in deeply held religious and philosophical beliefs. Fourth, at least since Pius XII's 1957 allocution, moral theologians have acknowledged the "rule of double-effect" as a way of understanding, in cases attended by intractable pain, the acceptability of induced unconsciousness even though it shortens life. Fifth, a large number of Jewish and Christian religious communities have adopted positions that endorse such mechanisms as the living will, durable power of attorney, and the like.

Our situation, nevertheless, is *our* situation, and that obliges us, however well-armed with maxims from antiquity, to address present circumstance. We acknowledge that physicians and nurses are sometimes uncomfortable with references to God and other religious symbols in the clinical context and that the religious pluralism of our society tends to intimidate both those who offer medical care and those who receive it. There seem to be at least three prinicipal points then, that from a religious perspective, ought to be included in answering questions about "medical futility":

1) It is essential to assess the resources available to medicine for beneficial intervention, but defining "futility" in medicine depends heavily on what we believe to be the appropriate goals or ends of human existence. These goals or ends are philosophical and theological commitments. Different religions, and different judicatories within religions, have different understandings of the purpose or end of human life, but it is precisely those commitments that underwrite what we take to be medically beneficial or non-beneficial, mandatory or dispensable, useful or futile.

2) It is well known that patients' religious commitments and those of hospitals and medical staff have the potential to conflict. Indeed, there are celebrated instances in which the presiding goals of medicine have collided with the religious views and commitments of patients. The older tradition of physician paternalism does not provide a promising paradigm for satisfactory resolution of this matter, but neither do more recent consumerist views that make the patient sole and final arbiter of medical care. A cooperative, collaborative, fiduciary relationship, in which both physician and patient seek a common goal, is wanted to supplant adversarial and one-party dominance associations, in which the power of one is superior over an inferior other.

3) Religious communities have much to offer to physicians, nurses, hospitals, and social policy, and it is crucially important that, from the outset of any discussion about "medical futility," religious communities be represented both in conversations among the professions and debates in the public square. This representation should be helpful for several reasons:

a. Religious communities are equipped, better than many others, to raise questions of ultimacy in situations so often preoccupied with immediacy. These questions, as alluded to earlier, concern the proper goals, ends, and purposes of human biologic existence and human personal and social life.

b. In a culture as fractured as ours is by commitment to individualism and autonomy, a principal role of a religious community (ordinarily as a consequence of the adoration and devotion offered its deity) consists of providing and facilitating a sense of belonging—of covenant, bond, alliance, compact, and communion. This sense of belonging transcends differences and distinctions which otherwise tend to separate persons.

c. In anticipation of circumstances that might qualify as "medically futile," religious communities are uniquely situated to prepare their members for the tragic dimensions of the human condition. We are a society which tends, except in exceptional cases, to assess the fact and the environment of death only in retrospect. Religious communities can equip their members to deal *prospectively* with both the fact and the meaning of dying and death, and with the compromised moral agency which attends sickness and disease.

d. In a society in which individuals are reluctant to make normative judgments about the behavior of others, religious communities can articulate what, for them as discrete groups, are the proper characteristics and commitments of the good life. These characteristics and commitments will vary among religions and religious communities (and fail, thereby, to provide a universal point of view), but articulation of what constitutes the good life will clearly impact how the members of these religious communities interpret the lineaments of a good death.

e. We live in an age that is simultaneously awed by scientific and technological accomplishment, concerned for fairness to all citizens, opposed to discriminatory access to national resources, and worried about how to finance an ever-expanding list of needs deemed indispensable to human health and welfare. Religious communities will (and ought to) be in the vanguard of those who insist that body is in the service of person, not the other way round. ❑

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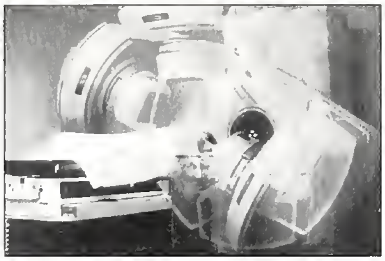

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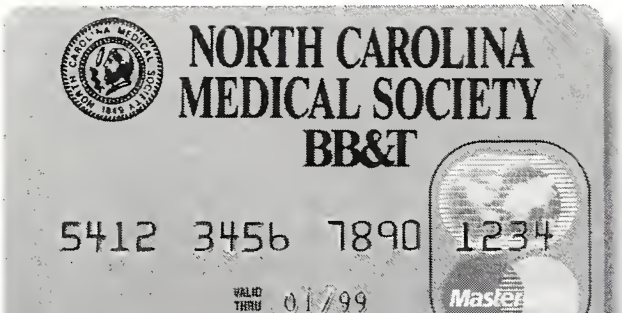

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Decisions About Futile Treatment in an Intensive Care Nursery

Ellyn B. Pearson, MD, MPH, Carl L. Bose, MD, and Ernest N. Kraybill, MD

One of the more troubling aspects of neonatal intensive care is its potential to sustain life when the benefits of this are unclear. Intensive care may only prolong the dying process, or provide treatment that is ineffective in terms of survival,[1] or overtreat particular conditions.[2] A word frequently used to describe such treatment is "futile." Physicians who work in neonatal intensive care units (NICUs) in the United States are often criticized for providing futile treatment. Critics suggest that futile treatment is provided because we have trouble deciding to limit intensive care of infants unlikely to benefit, a failure often attributed to a lack of compassionate decision-making by neonatologists[3] or parents.[4]

Much has been written about futile treatment in NICUs,[5-10] but we don't yet have much objective information documenting the prevalence and impact of such treatment. To provide some data on this complex issue, we conducted a retrospective chart review to describe our experience with futile treatment and decision-making in our NICU.

Methods

Study site. The NICU of the University of North Carolina Hospitals provides level III medical and surgical services to neonates from North Carolina and Virginia. The unit has 16 intensive care beds and 20 intermediate care beds. Our procedure is to begin intensive care on all newborns judged potentially viable and then, in compliance with the Child Abuse Amendments of 1984 (known as the "Baby Doe regulations"), to limit care when an infant is irreversibly comatose, or treatment appears futile (or virtually futile) and inhumane. The determination of futility is left to the medical caregivers. In cases where treatment is determined to be futile, physicians and families meet in family conferences to decide about limiting intensive care. Before treatment is withdrawn, two attending physicians must agree that further treatment is futile. The hospital Infant Care Review Committee is consulted only in complex cases. Physicians must document in the infant's medical chart all discussions about treatment limitation or withdrawal.

Chart review. Charts of all infants admitted to the NICU between January 1 and December 31, 1991, were reviewed for diagnoses, demographic data, length of stay, discharge outcome (dead, alive), orders to limit or withdraw treatment, and progress notes about "family meetings" regarding limitation or withdrawal of treatment. To qualify as a "family meeting," the note had to indicate that both the family and physicians were present, and that futility of further treatment as well as limitation or withdrawal of treatment were discussed.

For documented family meetings, we recorded the following: 1) date; 2) participants; 3) whether the meeting was initiated by physician or family; 4) whether or not the physician made a treatment recommendation; 5) what treatment decision was made; 6) the resulting course of action; and 7) whether or not there was disagreement between physician and family (that is, rejection of the physician's recommendation about treatment).

Family meetings resulted in three kinds of treatment options: 1) continue intensive care, with cardiopulmonary resuscitation (CPR) in the event of cardiac arrest; 2) limit care (continue intensive care but do not resuscitate [DNR] in the event of cardiac arrest, or do not add new intensive care therapies); and 3) withdraw intensive care.

For the purpose of this study, futile treatment was defined as intensive care given after the first family meeting at which limitation or withdrawal was recommended. Intensive care included any or all of the following: CPR, mechanical ventila-

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Table 1. Decisions about limiting treatment in infants admitted to the UNC Hospital Neonatal Intensive Care Unit in 1991

No decision to limit or withhold treatment		670
Alive at discharge	659	
Died in NICU	11	
Decisions not to initiate treatment because of non-viability		15
Alive at discharge	0	
Died in NICU	15	
Decision to limit or withdraw treatment on basis of futility		39
Alive at discharge	6	
Died in NICU	33	
Total infants		**724**

tion and/or oxygen, cardiopressors, prostaglandin, invasive monitoring, dialysis, and major surgical procedures. Routine measures to control infection and to maintain warmth, hydration, and nutrition were not considered intensive care.

The project was approved by the hospital's Committee on the Protection of the Rights of Human Subjects.

Results

In 1991, 724 infants were admitted to the NICU; 70% had been born at UNC Hospitals; 53% were male; 51% were non-white. Reasons for admission included prematurity (gestational age 24 weeks to 36 weeks) in 47%; medical or surgical illness of a term infant in 35%; congenital anomaly in 13%; prematurity and congenital anomaly in 3%; and extreme prematurity (gestational age ≤ 24 weeks) in 2%. Six hundred sixty-five infants (92%) were discharged from the NICU alive; 77% to home or community hospitals, 12% to the newborn nursery, and 11% to other level III NICUs. Fifty-nine infants (8%) died in the NICU (Table 1, above).

Description of decisions. Intensive care was provided to 670 infants for whom there were no recorded family meetings about limiting treatment (Table 1). Eleven (2%) of these infants died; nine survived less than one day (range zero to four days). Intensive care was not begun for 12 infants determined at the time of birth to be non-viable; seven of the 12 had extreme prematurity; five had congenital anomalies. In another three extremely premature infants, resuscitation was performed in the delivery room and support was continued until the attending physician arrived. At that time, non-viability was determined and support was withdrawn. All 15 infants died at less than 24 hours of age.

In 39 infants, intensive care was begun but subsequently determined to be futile. Sixty-four percent of these infants were born at UNC Hospitals; 69% were male, and 43% were non-white. The initial meeting with the families of these 39 infants resulted in continued intensive care for five, limited care for 22, and withdrawal of intensive care for 12 (Figure 1, below). In subsequent meetings, decisions were made to limit or withdraw intensive care for all infants. Thirty-three of the 39 infants died in the NICU and six were alive at discharge. The median interval between admission and the first family meeting regarding futility and treatment options was two days (Figure 2, next page). The first meeting occurred within three days in 22 cases (range: less than one day to as long as 183 days).

The six infants alive at discharge carried diagnoses of hydranencephaly in two; trisomy 18 in two; respiratory failure in one, and hypoxic-ischemic encephalopathy in one. For all but one of these six infants, the decision made in family meetings was to not resuscitate in the event of cardiac arrest. For the remaining infant, who had hypoxic-ischemic encephalopathy, the decision was to withdraw mechanical ventilation and then intravenous fluid therapy for diabetes insipidus, but maintenance oral fluids and nutrition were continued.

The infant with respiratory failure was transferred on mechanical ventilation to a level III NICU closer to the parents' home, where she died one month later. The other five infants,

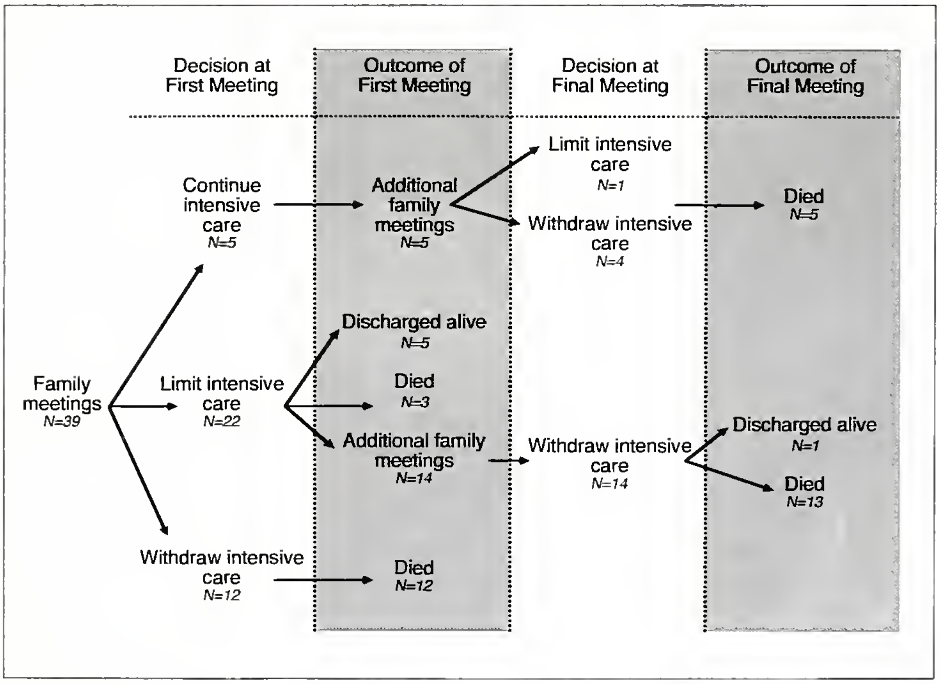
Decision at First Meeting
Outcome of First Meeting
Decision at Final Meeting
Outcome of Final Meeting
Family meetings N=39
Continue intensive care N=5
Additional family meetings N=5
Limit intensive care N=1
Withdraw intensive care N=4
Died N=5
Limit intensive care N=22
Discharged alive N=5
Died N=3
Additional family meetings N=14
Withdraw intensive care N=14
Discharged alive N=1
Died N=13
Withdraw intensive care N=12
Died N=12

Fig 1: Decisions and outcomes of the family meetings about treatment options for the 39 infants for whom treatment was determined by the medical caregivers to be futile.

free of respiratory support at discharge, were discharged home or to community hospitals; three died within two months of NICU discharge; one died 20 months after discharge; and one was alive 24 months after discharge. Median length of NICU stay at UNC for these six infants was six days (range one to 20 days).

Thirty-three infants died following judgments of futility and family meetings; four after limitation of treatment (DNR) and 29 after treatment withdrawal. Diagnoses in these infants included cardiorespiratory disease in 20; necrotizing enterocolitis in four; sepsis in three; congenital anomaly in four; and hypoxic-ischemic encephalopathy in two. Fourteen (42%) had central nervous system injury at the time treatment was judged to be futile (grade III-IV hemorrhage in 10; hypoxic brain injury in three; trisomy 13 in one). Five (15%) had renal failure. Median length of total NICU stay for the 33 infants was two days (range one to 184 days).

Chart review revealed no documented case in which intensive care was continued against a family's desire to stop or in which treatment was stopped against a family's desire to continue. In none of the cases of infants alive at discharge had intensive care been continued at family insistence despite a physician recommendation to stop.

Characteristics of the decision-making process.

1. The decision to undertake intensive care was based on the physicians' perceptions of viability.

2. Physicians initiated most (37 of 39) of the family meetings about futility and treatment limitation. In two cases, families appear to have initiated the discussions: that of a four-month-old premature infant with multiple congenital anomalies and that of a one-day-old infant with severe lung disease secondary to congenital syphilis.

3. Formal ethics consultation by the hospital's Infant Care Review Committee was obtained for only two of the 39 infants. One case involved a decision about tracheostomy in a four-month-old infant with multiple anomalies; the other involved a decision about continuing intravenous fluids in an infant with diabetes insipidus secondary to severe hypoxic-ischemic encephalopathy. In both cases, the Infant Care Review Committee concurred with the physician-family decisions to withdraw or limit treatment.

4. Families and physicians often met more than once to discuss the futility of treatment; the initial treatment decisions were subsequently changed for more than one-half of the infants (Figure 1, previous page). Following the first family meeting, 15 infants died and five others were discharged from the NICU as part of the decision to limit or withdraw intensive care support. For the remaining 19 infants, there were additional family meetings. Except in one case, treatment plans were always changed in the direction of lowering the level of intervention (for instance, from DNR to withdraw). The one exception involved an infant in whom a DNR order was discontinued two days after being written. This infant died 13 days later after mechanical ventilation was withdrawn.

5. Physicians usually initiated and guided the decision-making process, yet family preferences about level of care determined the later course of action. Physician recommendations about appropriate level of treatment were apparent in the notes from 36 of the 39 (92%) first family meetings. These included 23 recommendations to limit treatment (DNR) and 13 to withdraw treatment. In three cases, the physician made no apparent recommendation about withdrawal versus limitation, but in all three cases, the decision emerging from the first family meeting was to withdraw intensive care. In the other 36 cases, families agreed with the physicians' recommendations for 27 (75%) of the infants. In the nine cases of apparent disagreement, five families chose to continue treatment despite recommendations to limit or withdraw treatment, and four chose to limit treatment (DNR) rather than withdraw. In all cases, family preferences determined the course of action, and in eight of nine instances, families eventually agreed with the initial physician recommendation (in three cases, within 24 hours of the first family meeting; in five, within five to 36 days). In the one case without full agreement, the physician recommended withdrawal, the family chose to limit resuscitation, and the infant died within 24 hours.

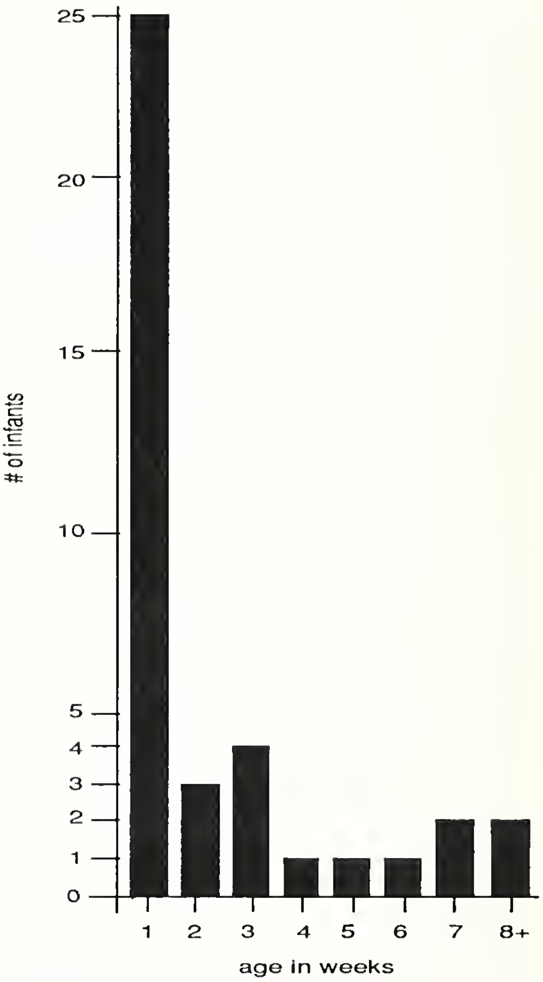

Fig 2: Postnatal age of the 39 infants at the time of the first family meeting to discuss futility and treatment limitation or withdrawal.

6. More than half (25 of 39) of the initial family meetings on futility and treatment options took place within the first week (nearly all within the first three days) of admission (Figure 2, above). Progress notes generally gave no consistent indication as to when treatment was first judged to be

futile, but delays in arranging meetings were mentioned in the cases of four infants.

7. For most cases in which decisions to limit or withdraw treatment were ultimately made, intensive care was continued no longer than 48 hours after the first family meeting on futility and treatment options. Twenty-seven of the 39 (69%) infants had died or been discharged from the NICU within 48 hours of the first meeting; 32 of 39 (82%) had died or been discharged within seven days.

Discussion

The potential for futile treatment in NICUs raises both humanitarian and financial concerns. Our data by no means address all concerns about such treatment, but they suggest that physicians and families can and do work together to make compassionate and timely decisions about the intensive care of newborns. Decisions to begin intensive care were based on the physicians' perceptions of viability, and we suspect that those decisions were often made solely by doctors. However, we also believe that agreement of the family was sought in many circumstances, particularly with extremely premature infants. Although decisions to initiate care may have most often been made by physicians, this study demonstrates that both physicians and families usually make collaborative decisions about the continuation of intensive care.

> "...this study demonstrates that both physicians and families usually make collaborative decisions about the continuation of intensive care."

Our definition of futile treatment is derived from the operational use of the term in our NICU and was based on case-by-case judgments by attending physicians. For our study, intensive care was not labeled futile until a documented discussion indicated that both families and physicians had considered that judgment. This definition allowed for individual—and unavoidable—variations in definitions of futility. Unfortunately, although almost everyone agrees that futile treatment is wrong, few agree on how to define it. In addition to objections that the determination of futility in our NICU is based primarily on physician judgments, some may object that the study definition did not include treatment of infants who were discharged alive from the NICU but who died in the first year of life or who developed severe handicaps. Others may object to labeling any life-sustaining treatment futile, regardless of outcome. Nevertheless, our data indicate that, once the issue of futility was raised, families and physicians usually worked together effectively to minimize futile treatment.

Our data provide an overview of how decisions about intensive care are handled in one NICU. However, the data are not comprehensive. Medical charts provide selected information, written from the health professional's point of view, and give, therefore, only a glimpse of reality. For example, we identified treatment as futile only when a family-physician discussion about futility and treatment options was recorded. It is likely that some discussions took place but were not recorded, particularly if they did not lead to decisions to limit or withdraw care. Also, because physicians wrote the notes about family meetings, we attributed initiation of the discussion about futility and treatment options to them unless otherwise stated in the note. It is possible that others—nurses or parents—were the first to recognize the need to discuss treatment options.

> "Guided decision-making does have the potential to impose the values of physicians on families."

In addition to the problems of relying only on medical charts as a data source, our study is limited because it was conducted in one NICU in one hospital. Therefore, our findings may need cautious interpretation in other settings; it is possible that NICUs in other institutions or in other parts of the country will approach judgments about medical futility differently. Nevertheless, our study provides a comprehensive look at the *process* of making these difficult decisions in one NICU.

The process of guided decision-making described here may be seen as paternalistic or as appropriate behavior based on physician expertise. Guided decision-making does have the potential to impose the values of physicians on families. Although physicians in our NICU try to elicit family values in forming treatment plans for all infants, their success in doing so is, of course, not answered by this study.

In 1986, Rhoden described international approaches to the treatment of high-risk infants and suggested that in some countries physicians adopt a "statistical prognostic strategy," providing intensive care only for infants with acceptable survival statistics.[11] In other countries, physicians adopt an "individualized prognostic strategy," which gives almost all infants a trial of intensive care treatment, but withdraws treatment when an infant's prognosis becomes grim. Rhoden also described a "waiting for near certainty" approach, in which all infants receive intensive care treatment until death appears near certain. Rhoden, and more recently Ryan,[12] suggested that this latter approach, which carries the greatest risk for futile treatment, is the one most widely followed in the US.

The data from the present study suggest that the doctors in our NICU follow the more moderate "individualized strategy." Here, only 19% of deaths in 1991 were not preceded by a decision to limit or withdraw care. For most infants who died, the decision-making process appears to have been initiated before death was "certain." This individualized approach was in place in at least one other NICU in the US in 1990.[13] Physicians at the University of California, San Francisco, reported that 67% of NICU deaths in 1990-1992 followed decisions to limit or withdraw treatment.[14] Their data are similar to the 90% figure reported in 1993 from a Canadian NICU.[12] These rates are considerably higher than the 13% rate reported for Yale-New Haven Hospital in 1973.[15]

In 1986, when Rhoden was describing international treatment approaches, the "wait until certainty" approach she ascribed to the US was thought to be related, in part, to the federal Baby Doe regulations of 1984 and associated public pressure to treat compromised newborns. Now, public pressure seems to be pushing care toward the "individualized" approach, if not toward explicit rationing. Public concerns about futile treatment or overtreatment in the NICU appear to have replaced concerns about apparent infanticide. Our data demonstrate that, even without explicit rationing, the pendulum is swinging toward limiting intensive care for infants unlikely to benefit. These efforts involve parents in the decision-making process, although they are not often initiated by parents. ❑

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Info: Dr. Joseph Marc Majure, Box 2994, DUMC, Durham 27710, 919/684-2289, fax: 919/684-2292

October 20-21
Management Education Development Series for Health Care Professionals
Place: Winthrop University, Rock Hill, SC
Credit: Category 1; call for details
Info: Ruth Dawson, Division of Graduate and Continuing Studies, Winthrop University, Rock Hill, SC 29733, 803/323-2303

October 20-22
Southeastern Dermatological Society Meeting
Place: Chapel Hill
Info: Office of CME, UNC, 919/962-2118 or 800/862-6264

October 22
2nd Annual Atherosclerosis Update
Place: Asheville
Credit: 5.5 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

October 25-29
8th Duke Fall Ob/Gyn Symposium
Place: Grove Park Inn, Asheville
Credit: 14.5 Category 1, AMA (including 2.5 hours mammography), AAFP and ACOG pending
Info: Office of CME, DUMC, 919/684-6485 or 800/222-9984

Continued on page 471

Instructions for Authors

The *North Carolina Medical Journal* is a medium for communication with and by members of the medical community of this state. The *Journal* will consider for publication articles relating to and illuminating medical science, practice, and history; editorials and opinion pieces; letters; personal accounts; poetry and whimsical musings; and photographs and drawings. Papers that relate to the present, past, or future practice of the health professions in North Carolina are especially pertinent, but manuscripts reflecting other perspectives or topics are welcomed. Prospective authors should feel free to discuss potential articles with the editors.

Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format, and at least one hard copy of the text. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. *Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere.* Decisions to publish or not are made by the editors, advised by the peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for their review and approval before publication. Manuscripts not accepted will not be returned.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each entire issue. Requests for permission to reprint all or any part of a published article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*.

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Address manuscripts and all other correspondence to:

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Box 3910, DUMC, Durham, NC 27710
Telephone 919/286-6410
Fax 919/286-9219

An Open Letter On Travel Savings To North Carolina Medical Society Members

Airline savings & dining discounts enhance Quest's already outstanding 50% off hotel rates

Dear NCMS Member,

Imagine saving a full 50% on hotel rates – *and having more than 2,100 terrific locations to choose from!* Well here's your chance to do just that, because now you can join Quest International – the nation's leading hotel savings program - at tremendous savings...

You'll join nearly 4 million Quest card holders who are now taking advantage of Quest's half-price hotel rates. And Quest has now added a terrific new dining program to their already outstanding 50% hotel savings.

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Continuing Medical Education

continued from page 467

October 26-28
Physician's Office Laboratory Symposium
Place: Winston-Salem
Info: Office of CME, BGSM, 910/716-4450

October 27-29
16th Mountain Medical Meeting
Place: Asheville
Credit: 12 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

October 29-November 1
Advances in Physiology and Pharmacology
Place: Asheville
Credit: 16 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

November 3-4
Cranial Nerve Dysfunction
Place: Searle Center, Duke University, Durham
Credit: 16 hours Category 1, AMA
Info: Office of CME, DUMC, 800/222-9984
or 919/684-6485

Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"Forecasting, Futility, and Hope"

Forecast: To observe that which has passed, and guess it will happen again. —*Kin Hubbard*

All forecasting is, in an important sense, backward-looking—vividly compared to steering a ship by its wake. —*Ralph Harris*

All men know the utility of useful things, but they do not know the utility of futility. —*Chuang-tzu,* This Human World

Hope is the physician of each misery. —*Irish proverb*

There is nothing so well known as that we not expect something for nothing—but we all do and call it hope. —*Edgar Watson Howe*

Hope in reality is the worst of all evils, because it prolongs the torments of man. —*Nietzsche*

Oft has a man been abandoned by the skill and care of physicians, but hope leaves him not though his pulses fail. —*Ovid*

He is the best physician who is the inspirer of hope. —*Samuel Taylor Cooleridge*

Editor's note: Fax aphorisms to 919/684-8358.

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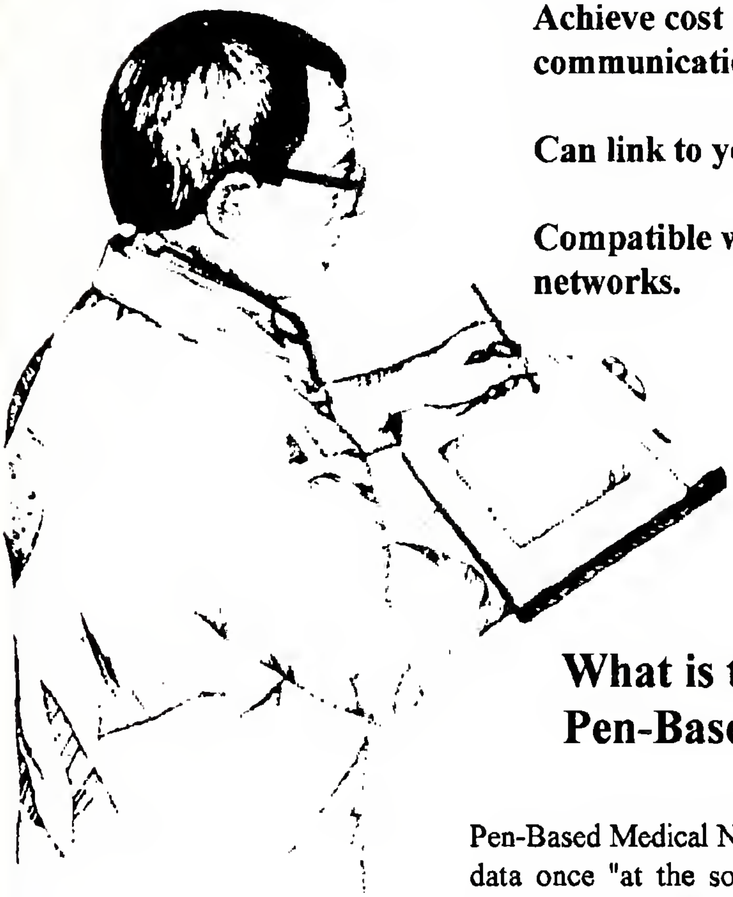

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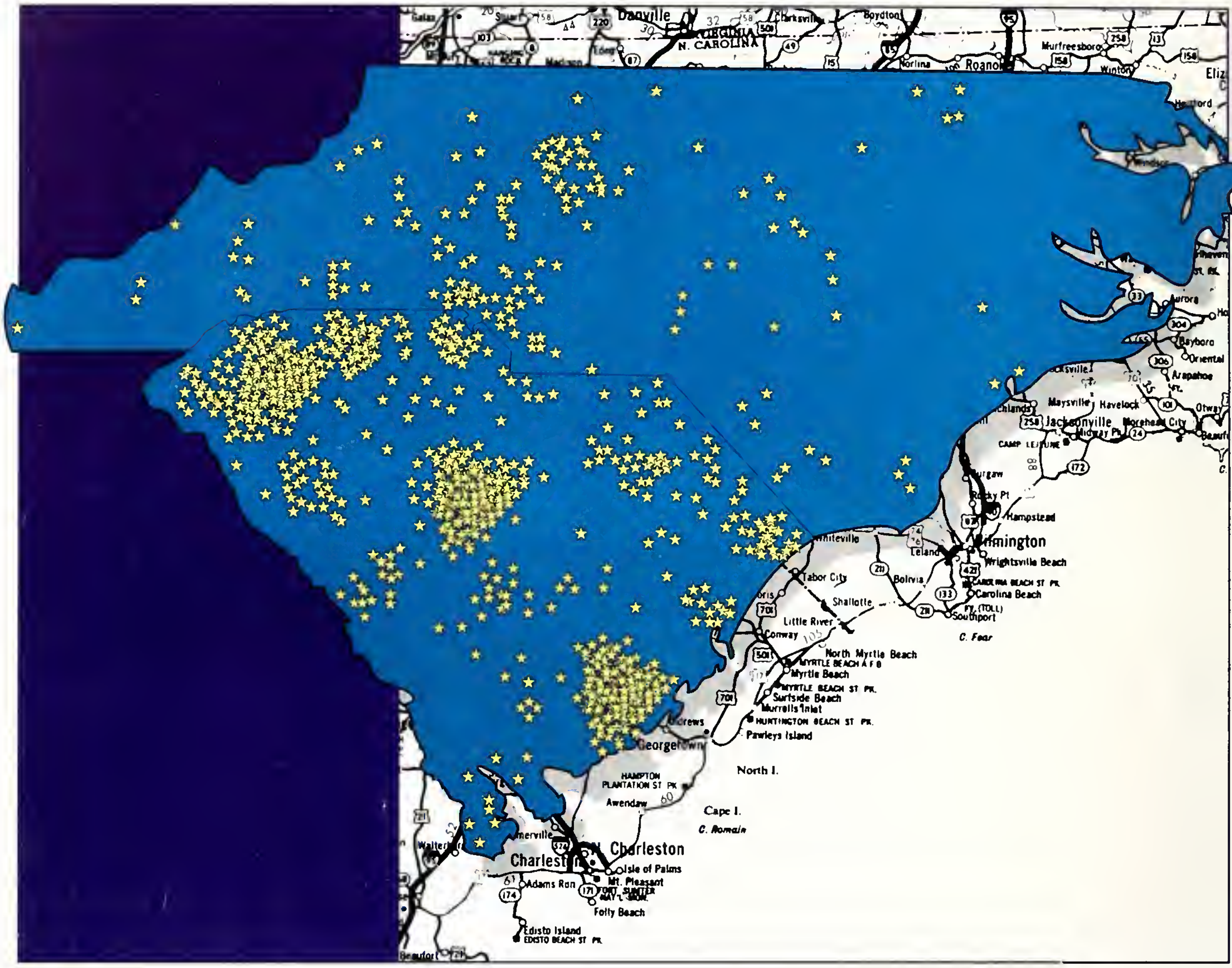

What can a map tell you about a computer system?

Plenty—if, like this one, it shows how many medical offices in the Carolinas use a particular practice management system to run more efficiently, effectively, and profitably.

For example, it might show how a 16-year commitment to "Working for Physicians" has resulted in over 800 installations in North and South Carolina.

It might bring home how features like "on-the-fly" refiling, encounter-form tracking, and direct transmission to North Carolina Medicare, Medicaid, and Blue Cross/Blue Shield (with no per-claim charges) are improving physicians' revenue.

It could clarify how critical "one-call" support can be in helping offices stay productive—how telephone support staff, software and hardware engineers, technicians, trainers, and a fleet of service vans can provide support unmatched in the industry.

It might demonstrate how on-going research and development brought innovations like the first integrated, direct electronic claims transmission in a practice management system.

Or it could validate the concept of regional focus: By selling systems only in the Southeast, a computer company can keep customers up-to-date on the latest insurance filing requirements.

It could emphasize the flexibility of multi-user, multi-tasking software that runs on the most popular operating system in the world.

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North Carolina Medical Journal

For Doctors and their Patients

Disease Management:
Drug Reactions in a Psychiatric Hospital

Medical Ethics:
Exploring and Explaining the Boundaries of "Humanness"

Organized Medicine:
The Future of NCMS Membership

Physician Primer:
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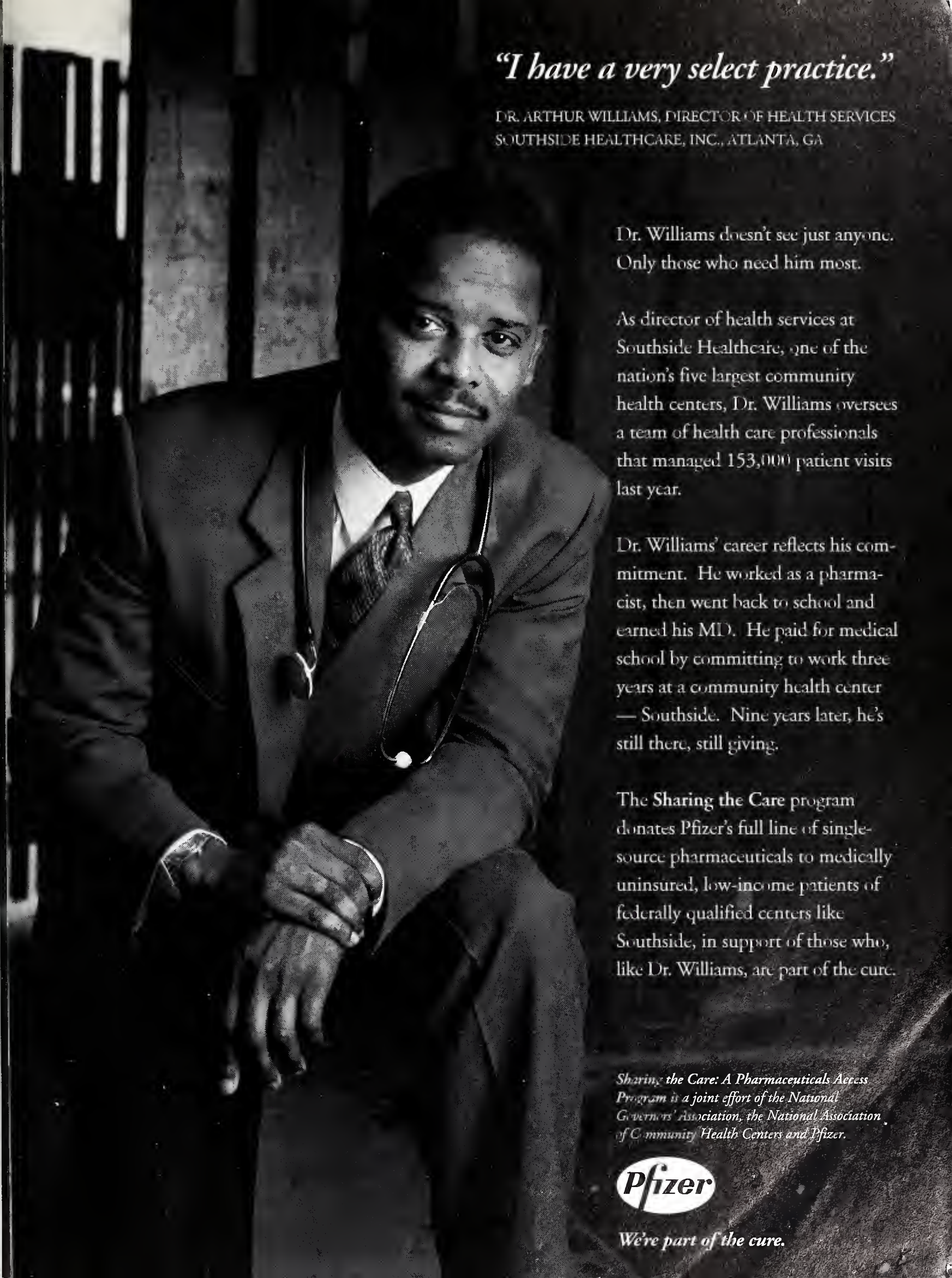

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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

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FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor

Tularemia Fatality

To the Editor:

In their article in the July issue titled "Tularemia in North Carolina, 1965-1990," (NC Med J 1995; 56:314-7, Drs. Langley and Campbell state that during that period of time no fatalities were reported. On December 8, 1976, Walter D. Gable, MD, and I autopsied a 46-year-old white male who had been admitted to Onslow Memorial Hospital in Jacksonville on December 1, 1976, with fever of undetermined origin.

The patient admitted cleaning wild rabbits, squirrels, and deer approximately two weeks prior to the onset of his illness. He had right supraclavicular and axillary adenopathy, which was biopsied. The tissue diagnosis was non-specific lymphadenitis. A titer of 1 to 20 for *Francisella tularenisis* was obtained. The decedent had been started on specific antibiotic therapy for tularemia. However, he developed rapidly overwhelming pneumonia and died.

At autopsy, the lungs showed a pneumonic process that involved all lobes of both lungs. Microscopically, the alveolar septae were markedly widened and edematous, and in some sites were necrotic. Scattered focal areas of hemorrhage and rare polymorphonuclear leukocytes were present along with fibrin and hyaline membranes. The only other significant abnormality was marked congestion of the splenic pulp with microabscesses.

Specimens obtained at autopsy were sent to the Centers for Disease Control and Prevention. The CDC report indicated that fluorescent antibody stain, cultures, and mouse inoculation were all positive for *Francisella tularensis*. Their report also stated that this information was reported to the North Carolina State Board of Health.

Charles L. Garrett, MD
Coastal Pathology Associates, PA
Onslow Memorial Hospital
317 Western Blvd., P.O. Box 1358
Jacksonville, NC 28541-1358

Dr. Langley responds:

I thank Dr. Garrett for bringing to our attention a death due to tularemia in Onslow County in 1976. Unfortunately, this record must have been misplaced at the state health department as we individually reviewed and analyzed all records provided.

Two non-fatal cases of tularemia were reported from Onslow County, a 13-year-old white male who had been handling rabbits, and a 35-year-old white male who reported no vector contact. The cases occurred in 1984 and 1971, respectively. I was, in fact, surprised that in our review of the records, no deaths were reported given the case fatality rate of 5%-7% for the Type A strain of tularemia. Physicians and health departments need to be aware that this is a reportable disease in North Carolina.[1]

Ricky Langley, MD, MPH
Division of Occupational and
Environmental Medicine
Box 2914 Duke Univ. Medical Center
Durham, NC 27710

Reference

1 Frazier L, Jones B, Darcey D, et al. Mandatory reporting of occupational health problems: a new survellance program in North Carolina. NC Med J 1994;55:526-31.

Ethical Dialogue

To the Editor:

I am working on a book on medical ethics and would like to enlist the help of *Journal* readers: Has anyone ever faced an ethical dilemma, and how did you resolve it?

I am interested in all aspects of medical ethics—human experimentation, ethics of reproductive technology, abortion, medical treatment of the uninsured and poor, malpractice, physician-assisted suicide, the right-to-die (why some doctors do not honor living wills), genetic counseling, genetic manipulation, euthanasia, organ transplantation, use of fetal tissue, and other situations concerning ethical dilemmas. Please reply to:

Claude A. Frazier, MD
4C Doctors Park
Asheville, NC 28801

Informing Patients About DNR

To the Editor:

I am requesting permission to photocopy the February "Health Watch" section "Dying at Home: A Review of the Do-Not-Resuscitate Process" (NC Med J 1995;56:97-100). I would like to use this article in the pre-op anesthesia clinic where many of our patients have questions regarding the DNR form and implementation of the procedure. This article will go a long toward helping both the patients and the physicians in the clinic.

Sunil Dogra, MD
Clinical Assistant Professor
Department of Anesthesiology
UNC School of Medicine
CB# 7010, 223 Burnett-Womack Bldg.
Chapel Hill, NC 27599-7010

From the Editor:

We have granted Dr. Dogra permission to copy the February Health Watch, and we are pleased that he deems it worthy of dissemination to patients.

Kindred Spirit

To the Editor:

Dr. Frazier's article in the August issue ("To Soar 'with Wings, as Eagles': The Day I Tried Hang Gliding," NC Med J 1995;56:372-4) was very refreshing. Doing what you want to do, no matter how far outside the usual routine, is what keeps life interesting.

I, too, began hang gliding—at an even older age—and found it very exhilarating. Dr. Frazier has described the technique, the experience, and the satisfaction of something new accomplished in a wonderful fashion. I compliment him.

H. Max Schiebel, MD
1020 Anderson St.
Durham, NC 27705

Concluding Comment

To the Editor:

As I near the end of my last term as a member of the *Journal's* Editorial Board, and being a subscriber for many years, I offer a few observations about the publication. The *NCMJ* is a good, informative journal because it has a good mix. Within its pages, readers have the opportunity each month to revere the past, acknowledge the present, and welcome the future in the field of medicine and how it is practiced in North Carolina. Through the *Journal*, Society members share a common tradition and heritage.

Jay M. Arena, MD, Professor Emeritus
Department of Pediatrics
Box 3024, Duke Univ. Medical Center
Durham, NC 27710

From the Editor:

Our hats are off to Dr. Arena and we are indebted to him for his 15 years of service to the *Journal* as a member of our Editorial Board. He has agreed to continue to consult with us on *Journal* matters and review manuscripts.

Guidelines for Letters: Letters are subject to editing and abridgment and should be no longer than 500 words. For longer letters, send a 3 1/2-inch disk with the text written in MS DOS- or Macintosh-compatible format. Send to: *NC Medical Journal*, Box 3910, DUMC, Durham, NC 27710, fax: 919/286-9219.

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Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format, and at least one hard copy of the text. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

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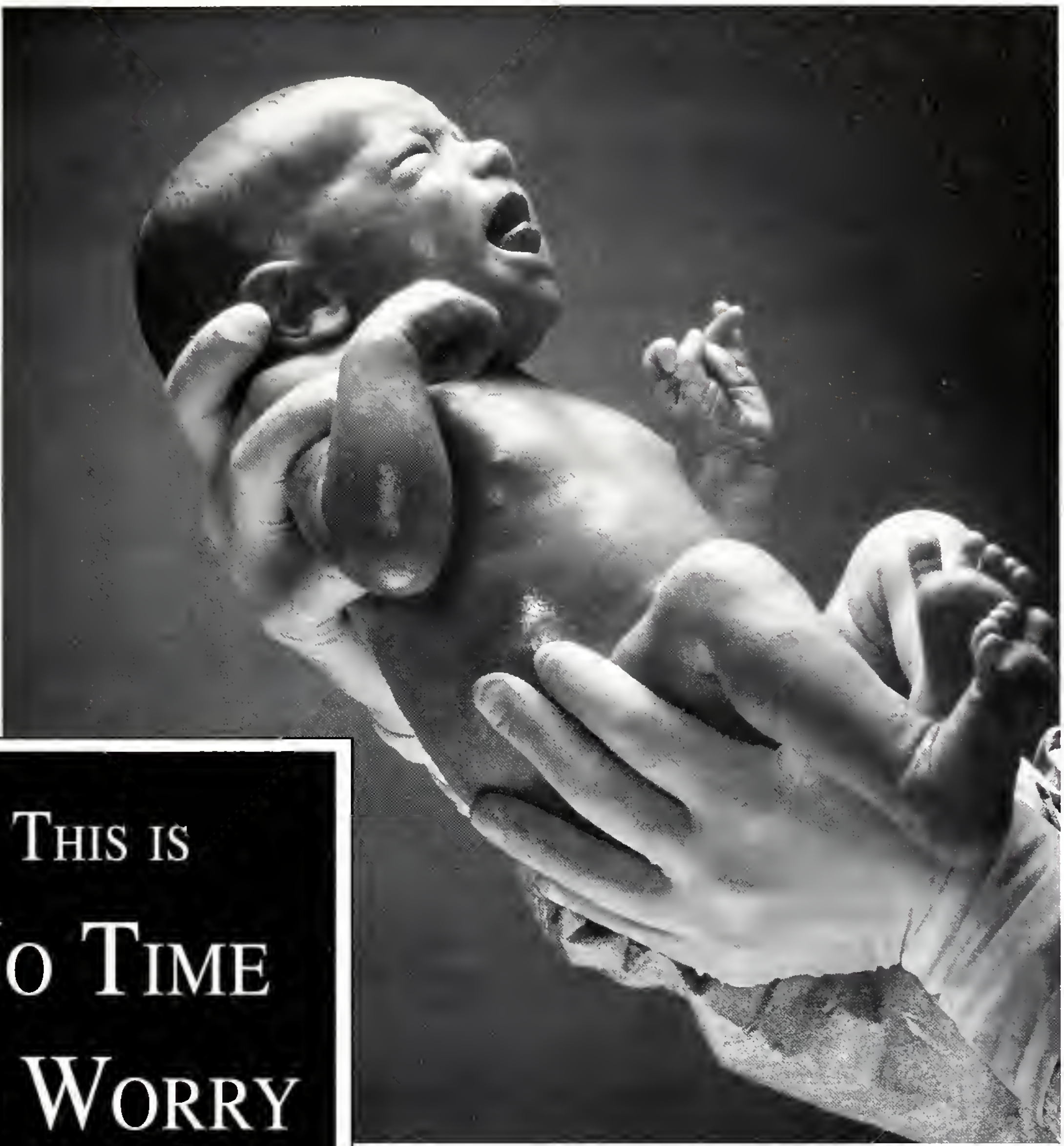

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Race, Education, and Mortality in North Carolina

Paul A. Buescher, PhD, and Jack K. Leiss, PhD

Blacks in the United States have higher mortality rates than whites.[1-3] There is also a well-established relationship between socioeconomic status and mortality: Persons in lower socioeconomic strata generally have mortality rates higher than persons in higher strata.[1,4-10] But we don't know as much about how race and socioeconomic status interact with mortality. There has been less research on this topic and the results we have are inconsistent.

Some researchers[11,12] have suggested that racial differences in mortality are primarily due to the lower socioeconomic status of blacks and that racial differences in mortality diminish or disappear if socioeconomic status is taken into account. Nelson[5] found no significant differences in mortality between very poor black and white children. Nevertheless, other studies have concluded that significant racial differences in mortality do remain after controlling for traditional measures of socioeconomic status.[13] Otten[3] found that 31% of the excess mortality of black adults could be explained by six well-established risk factors, and another 38% by family income level, but 31% of the racial difference in mortality still remained unexplained.

We used statewide data covering a three-year period to look at the relation of race and socioeconomic status to mortality in North Carolina. We addressed three questions: 1) To what extent do racial differences in mortality persist after we control for socioeconomic status? 2) To what extent can we find socioeconomic differences in mortality *within* race groups in North Carolina? 3) How do racial and socioeconomic differences in mortality vary by age?

Methods

Defining socioeconomic status. Socioeconomic status has traditionally been defined using income, occupation, or education. When studying the relationship of socioeconomic status to health, income and occupation have a serious flaw: declining health can lead to loss of income and downward mobility in occupation. Thus the direction of causation between health status (measured by mortality) and socioeconomic status measured by income and occupation may be blurred. Educational attainment avoids this problem because it is fixed fairly early in life (usually by age 25) and is not affected by the approach of death (except at young ages). Therefore, we used education to measure socioeconomic status. It forms a dimension of socioeconomic status which is only partially correlated with other dimensions such as occupation and income.[1,14]

Calculating death rates. We used population data from the 1990 census and data from 1989-1991 death certificates to calculate death rates by race and education for North Carolina. This approach was recommended in the landmark study of differential mortality by Kitagawa and Hauser.[1] The education of a decedent has been recorded on death certificates only since 1988, so this type of study has not been possible in North Carolina before. We elected not to use the decedent's occupation (although it has been recorded on North Carolina death certificates before 1988) because, in addition to the uncertainty cited earlier of using occupation to assign socioeconomic status, there is another potential discrepancy in that death certificates record the decedent's *usual* lifetime occupation; the census reports *current* occupation.

Educational and racial categories. We used the educational categories provided by census data. They are generally consistent with those used in other studies and are defined in terms of years of education completed: 0-8; 9-11; 12; more than 12. We would have liked more categories above 12 years of education, but incompatibilities between the death certificate and census data prevented this. Education on the death certificate is defined strictly in terms of "highest grade completed," usually as reported by next of kin. Census data are self-reported and are oriented to diploma attainment: "9th

---

The authors are with the State Center for Health and Environmental Statistics, NC Department of Environment, Health, and Natural Resources, P.O. Box 29538, Raleigh 27626-0538.

Table 1. Educational attainment of North Carolina population age 25 and over in 1990 by race and sex

	White males			White females			Black males			Black females		
Education	**Number**	**%**	**Avg. Age**	**Number**	**%**	**Avg. Age**	**Number**	**%**	**Avg. Age**	**Number**	**%**	**Avg. Age**
0-8 years	186,886	12	61.3	189,917	11	66.6	70,324	19	61.5	76,449	17	66.2
9-12 years, no diploma	246,225	16	49.5	277,241	16	54.5	85,652	24	44.9	112,037	24	49.1
High school graduate	426,580	27	45.3	548,818	31	49.0	107,188	30	39.5	129,648	28	42.3
Some college	728,455	46	44.1	739,566	42	44.7	99,323	27	40.0	142,133	31	40.5
Total	1,588,146	100	47.3	1,755,542	100	50.0	362,487	100	45.2	460,267	100	47.4

to 12th grade, no diploma" and "high school graduate." We have assumed that these categories correspond to death certificate categories of "9-11" and "12" grades completed, respectively. We combined the available census categories of "some college, no degree" and "bachelor's degree" into one category of "education above high school." We used only data for persons older than 24 since education is usually fixed by that age.

We examined deaths in two racial groups, white and black; because of small numbers, we omitted deaths of American Indians and Asians from our analysis. To detect differences that may occur across race/sex groups, we generally present data in four demographic categories: white male, white female, black male, and black female. The census population counts for 1990 were multiplied by three to form the denominators used to calculate 1989-1991 death rates.

Age-adjusting of death rates. We adjusted the death rates for each race/sex/education group to the age distribution of the total population (white plus black) using the direct method of age adjustment. Because age distribution differs drastically by educational category, persons with low education are much older on average than persons with higher education. If we had not adjusted for age, we would have attributed to education what is predominantly an age effect. Also, blacks in North Carolina have a younger age distribution than whites, which tends to lower their unadjusted death rate; adjustment eliminates bias from age differences.

Age-specific death rates were computed for the seven age groups of the census data: 25-34, 35-44, 45-54, 55-59, 60-64, 65-74, and 75+ years old. Since the numbers of 1989-1991 age-specific deaths used in the adjustment process were, with a very few exceptions, much larger than 100, the computed rates will be relatively stable from a statistical standpoint. We examined only overall death rates in this study. We did not test any hypotheses about variation by cause of death. Serious problems of statistical instability would result from computing death rates for cause-specific categories, some of which would have a very small number of deaths.

Missing information. For 1989-1991, 16% of the death records for whites and 15% for blacks gave no information about education. We have omitted those records from our death rate calculations. If we assume that these deaths were randomly distributed, then the magnitude of our calculated death rates will be reduced somewhat but comparisons by race/sex and education will not be biased. The assumption of random distribution seems plausible since the age/race/sex distribution of certificates without education information is very similar to the age/race/sex distribution of those with education information, except for a slight excess of decedents in the 75+ age group.

Results

Table 1, above, shows age/race/sex/education data on the 1990 resident population of North Carolina aged 25 and older. These data (multiplied by three) form the denominators used to calculate 1989-1991 mortality rates. Blacks had generally achieved lower educational levels than whites (for example, 43% of black males and 41% of black females had less than a high school education, compared to 27% for white males and females). One striking finding Table 1 shows is the much higher average age of persons in the lower educational groups. This underscores the importance of adjusting mortality rates for age when comparing educational groups. Also, except for the lowest educational group, the average age of each educational group of blacks is substantially younger than the corresponding groups of whites, pointing out the need for age adjustment when comparing the mortality rates by race.

The *unadjusted* 1989-1991 mortality rates of persons with 0-8 years of education were some six times higher than the rates of those with more than a high school diploma, but *unadjusted* rates for blacks were not generally higher than those for whites (data not shown). The *age-adjusted* mortality rates (Table 2, next page) show a much different pattern. There is an overall decline in mortality rate with increasing education, but the differences by education are much less after age adjustment. Persons with 0-8

Table 2. Age-adjusted* 1989-1991 North Carolina death rates (deaths per 100,000 population) by race/sex/education

	Females				Males			
Years of school completed	Black	White	Total	Black/white Ratio	Black	White	Total	Black/white Ratio
0-8	1186	992	1049	1.20	2084	1658	1774	1.26
9-11	982	951	977	1.03	2084	1605	1721	1.30
12	1336	722	798	1.85	2786	1424	1585	1.96
More than 12	953	700	728	1.36	1407	988	1020	1.42
Total	1076	807	859	1.33	1979	1348	1456	1.47

* Age-adjustment is made using the total 1990 NC population (white plus black) by age.

years of education have mortality rates about 1.5 times higher than those with more than high school education. After age-adjustment, blacks show consistently higher mortality than whites at every educational level.

The data in Table 2 mean that racial differences in mortality in North Carolina are not explained simply by the lower average level of education among blacks. This conclusion was confirmed when we statistically adjusted the mortality rates of blacks and whites for *both* age and education (data not shown here) and found very little further reduction in the racial differential in age-adjusted mortality.

Mortality rates for both white and black males were much higher than those for females (Table 2, above). Mortality rates for males (within race) are 1.5 to 2.0 times those for females across all levels of education. Figure 1, at right, graphically portrays the patterns in Table 2. Table 2 and Figure 1 show a peculiar rise in age-adjusted mortality for black males and females with 12 years of education, but a sharp drop in mortality for those with more than 12 years of education. No such pattern is seen with the white population and we are unsure whether this phenomenon is real or represents problems in the recording of education level.

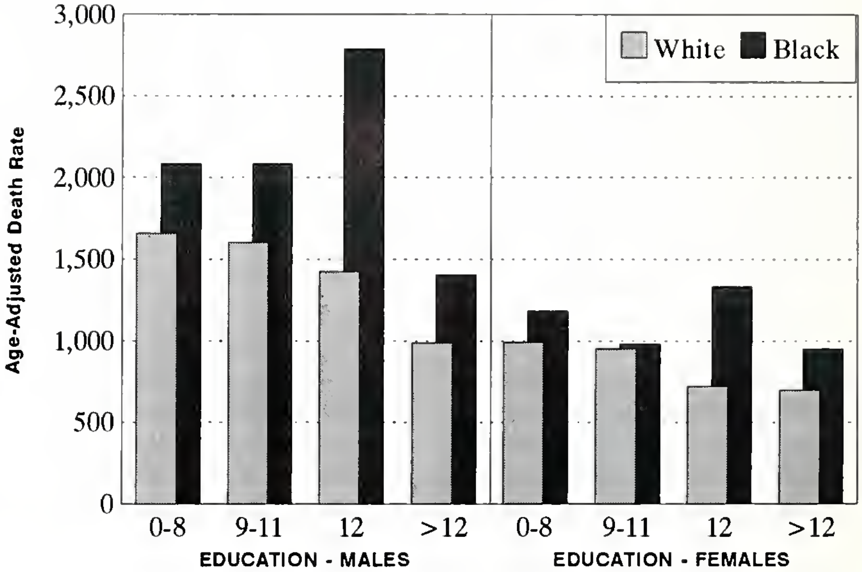

Fig 1: Table 2 data, age-adjusted 1989-1991 North Carolina death rates (deaths per 100,000 population) by race/sex/education, shown graphically.

Examination of age-specific patterns provides additional information about racial and educational differences in mortality. Table 3 (next page) shows age-specific mortality rates by race and sex, along with black/white death rate ratios. The differences in mortality between blacks and whites are much larger in the younger age groups, and there are very large sex differences in mortality, particularly at the younger ages.

Table 4 (next page) shows age-specific mortality rates by education and sex, as well as the ratios of the mortality rates of the lowest and highest educational groups within each age group. Educational differences in mortality are much larger at younger ages, and there are very large sex differences in mortality at the younger ages. Comparing the ratios in Tables 3 and 4 suggests that, in North Carolina, differences in mortality based on educational level are generally greater than differences based on race. This finding is consistent with other studies suggesting that socioeconomic factors transcend race as predictors of health.[15-17]

Discussion

We posed several questions and the results presented here begin to address them.

After adjustment for age differences, blacks are approximately 40% more likely to die in a given year than whites. This difference is not due solely to the lower average educational levels of blacks: there are substantial racial differences in mortality at every level of educational attainment (Table 2). There are substantial educational differences in mortality within each race-sex group: after adjustment for age differences, persons with the lowest educational attainment (0-8 years) were 50% more likely to die in a given year than those with at least some college education (Table 2). The differences in mortality attributable to both race and education are much larger in the younger age groups (Tables 3 and 4).

We found an unusual rise in age-adjusted mortality of black males and females with 12 years of education. The peak in mortality at 12 years of education was found in every age group for blacks, but was much more pronounced for those over age 45. There is no reason to expect that blacks with 12 years of education should have higher mortality those with 0-8 years of education. Differences in how education is classified on death certificates and in the census data could contribute to this finding. If a substantial number of blacks who completed 12 years of education did *not* attain a high school diploma, then they would appear in the "12" category in death certificate data (numerator) but in the "9-11" category in the census data (denominator). This would inflate the apparent death rate for persons with 12 years of education. One study[18] of the quality of educational data reported on death certificates found that the number of decedents reported by next of kin to have 12 years of education markedly exceeded the number self-reported on a matched survey of educational level.

Table 3. Age-specific 1989-1991 North Carolina death rates (deaths per 100,000 population) by race/sex

	Females			Males		
Age	Black	White	Ratio	Black	White	Ratio
25-34	136	57	2.38	361	142	2.55
35-44	260	106	2.45	605	208	2.91
45-54	578	254	2.27	1225	509	2.41
55-59	922	548	1.68	2066	1063	1.94
60-64	1487	872	1.71	2887	1665	1.73
65-74	2374	1578	1.50	4590	3064	1.50
75+	5854	5887	0.99	8802	8413	1.05

Our study suggests that differences in socioeconomic status (as measured by educational attainment) of blacks and whites in North Carolina do not explain the higher mortality rates of blacks. In part, this may be due to the imperfect correlation of education with other important socioeconomic determinants of mortality such as income and occupational status.[1,14] For example, in 1983 the earning capacity of black *college* graduates was almost identical to that of white *high school* graduates.[19] Information on all these dimensions of socioeconomic status might help explain the persistent racial differential in mortality if we could overcome the problem of reverse causation discussed earlier.

Other studies have found unexplained racial differences in health that persist after controlling for income and other known risk factors.[3,13] Sev-

Table 4. Age-specific 1989-1991 North Carolina death rates (deaths per 100,000 population) by sex/education

	Females					Males				
	Years of school completed					Years of school completed				
Age	0-8	9-11	12	>12	Ratio*	0-8	9-11	12	>12	Ratio*
25-34	177	111	116	42	4.21	392	291	276	81	4.85
35-44	288	215	187	84	3.45	551	473	430	139	3.95
45-54	581	397	359	184	3.15	1030	806	799	324	3.17
55-59	904	658	654	402	2.25	1595	1427	1461	724	2.20
60-64	1236	1116	969	704	1.75	2240	2105	2105	1156	1.94
65-74	1983	2091	1493	1300	1.53	3803	4044	3270	2139	1.78
75+	6103	6184	5023	5836	1.05	8797	9102	8658	7085	1.24

*death rate for those with 0-8 years of education divided by rate for those with >12 years of education.

eral factors might account for a higher mortality of blacks at each socioeconomic level. Blacks may have less access to health care, due in part to shortages of health care providers in black communities. Or blacks with the same educational level as whites may work different jobs—with increased worksite health risks or less adequate health insurance coverage. Several authors[17,19-24] have suggested that racism and racial discrimination may lead to higher mortality for blacks in the United States, for example, because limited job opportunities for blacks restrict their access to health care,[25] or because blacks are treated differently by medical care providers.[26-28] And the stresses associated with minority status could result in more hypertension[14,29,30] and more negative health behaviors such as smoking,[31] alcoholism, or violence.

Terris[32] has called for "desegregating health statistics" and working on the health problems of people from different economic, occupational, or educational classes without regard to skin color. Krieger,[21] on the other hand, maintains that racial differences in health cannot be reduced to a question of social class, that racial discrimination means that whites and blacks—even within the same economic class—will have different health status. There is no simple answer to these different viewpoints, but our study shows a substantial excess mortality among blacks in NC, even after controlling for educational attainment. We need further work to explain the disparity and to construct appropriate solutions. ❑

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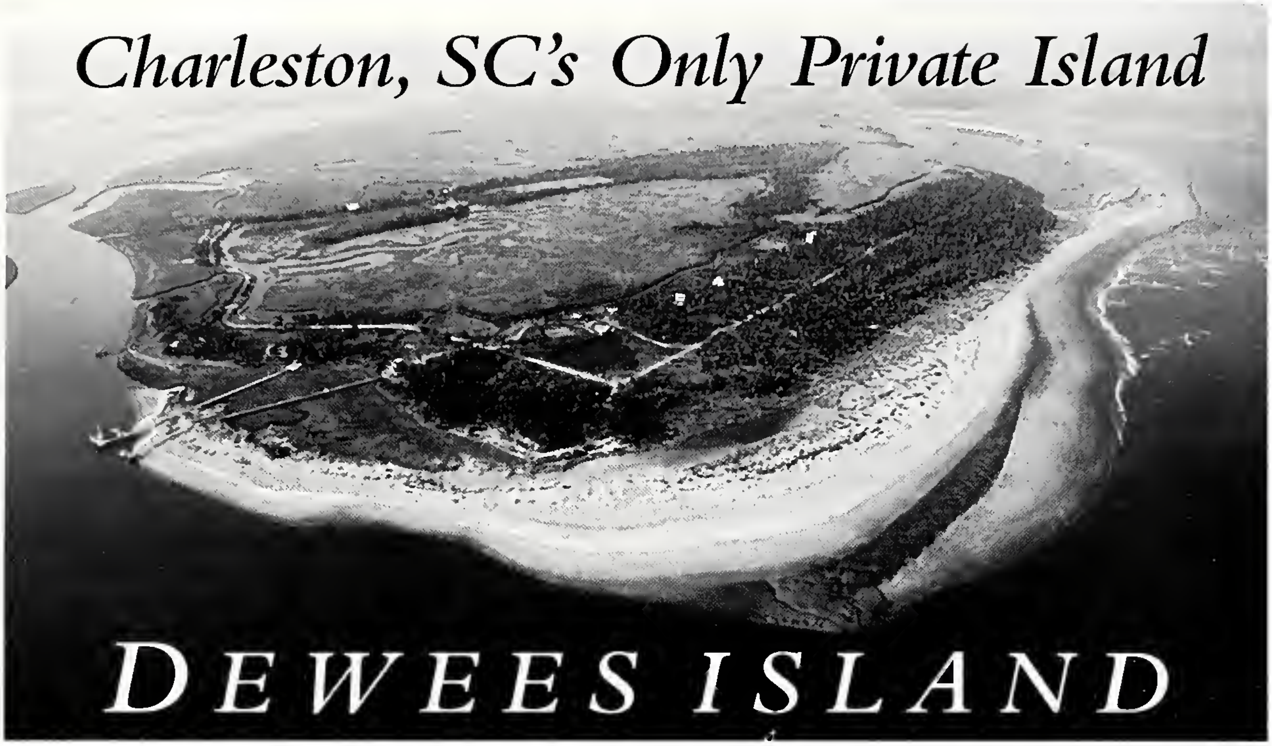

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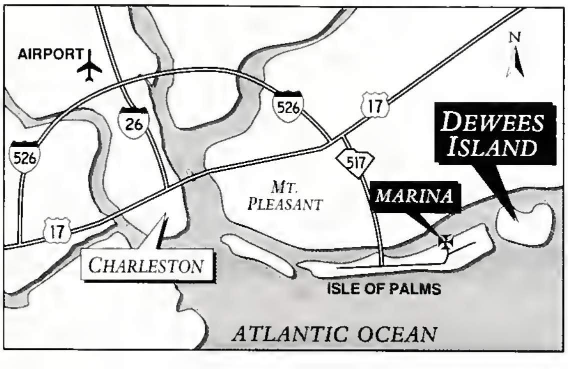

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Diabetes in North Carolina

Directions for the Future

Betty Lamb, RN, MSN, Georjean Stoodt, MD, MPH, Marilyn Norman, RN, CDE, MPH, and Peter Andersen, MEd, MBA

Diabetes mellitus, a chronic and potentially disabling disease, is a major public health and clinical concern. Approximately 297,000 North Carolinians suffer from the disease. The estimated total cost of diabetes during 1992 in North Carolina was $1.4 billion. Approximately 48% of this cost paid for inpatient and outpatient health care; the remaining 52% was indirect and associated with foregone wages due to short-term morbidity, long-term disability, and premature death from diabetes.

The burden of diabetes mellitus in North Carolina has been described in greater detail in the *Journal.*[1] Reducing the burden means looking at the interrelationship of patients, health care professionals, educators, insurers, and others who impact the management of this chronic disease. To address the issues and problems on a statewide basis, the Diabetes Control Program of the North Carolina Department of Environment, Health and Natural Resources invited individuals involved in diabetes care from throughout North Carolina to a leadership conference on "Diabetes Prevention and Control." Participants from medicine, nursing, nutrition, epidemiology, health care administration and management, pharmacy, insurance, and volunteer organizations, and persons with diabetes met on February 10, 1993, to lay the foundation for a statewide effort to reduce the burden of diabetes in North Carolina. Participants examined issues of patient and professional education, standards of medical care, and third-party reimbursement. We present their recommendations and the strategies proposed for achieving them.

Patient Education

For patients and their families to understand and live every day with diabetes, they must have access to and participate in a program of patient education. Since patients learn best in their own environments, education is best accomplished in community settings (many communities offer diabetes self-management education only at hospitals). Educational methods must be appropriate for people from a variety of backgrounds and educational levels. Those who teach should be certified or working toward certification as diabetes educators. (In 1994, 188 North Carolinians were members of the American Association of Diabetes Educators; more than 110 were certified diabetes educators). Every community should have access to a diabetes education program administered by a certified diabetes educator.

Recommendation 1. Diabetes self-management education—taught by certified diabetes educators according to National Standards for Diabetes Education Programs[2]—should be available to all residents of North Carolina with diabetes and their families.

Strategies:

- Increase the pool of certified diabetes educators.
- Enroll interested local health department staff in the East Carolina University (ECU) School of Medicine Diabetes Clinical Fellowship.
- Provide scholarships to the ECU School of Medicine Diabetes Clinical Fellowship to other interested community professionals.
- Develop and disseminate new techniques of patient education.
- Explore non-traditional approaches to patient education.
- Send local professionals to the annual conference of the American Association of Diabetes Educators.
- Encourage the creation of diabetes support groups.
- Educate physicians about the need for and importance of referring patients for diabetes self-management education.

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Professional Education

Physicians and other health professionals can get updated on diabetes care by attending the yearly meetings of the American Diabetes Association and local, regional, and state conferences. As of 1993, most North Carolina diabetes care was provided by generalists (1,694 internists or 1,925 family or general practitioners; there were only 75 endocrinologists in the state). There were 211 professional members (approximately 150 physicians) of the North Carolina affiliate of the American Diabetes Association. It is clear that continuing professional education must not be limited to programs offered by the American Diabetes Association and specialty societies.

Recommendation 2. Educate physicians in the latest techniques of medical management and self-management instruction, and in the minimum standards of diabetes care.
Strategies:
- Increase the number of primary care physicians specially trained in diabetes care.
- Help the North Carolina Academy of Family Physicians, Area Health Education Centers, North Carolina Medical Society, medical schools, and other physician organizations strengthen diabetes-related content of medical education and continuing education programs.
- Provide instructional workshops and seminars at central locations throughout the state, and instructional videotapes for home use.
- Develop "refresher residencies" for physicians.
- Provide short, one-on-one presentations to physicians in their offices.
- Compile and make available a statewide inventory of resources available to primary care providers.

Recommendation 3. Plan and implement multidisciplinary professional education.
Strategies:
- Assess the educational needs of the diabetic population.
- Form a multidisciplinary committee to make recommendations.
- Introduce the latest techniques in diabetes management through workshops and seminars at central locations.
- Introduce innovative programs using modern educational technology.
- Introduce a team concept. Enhance the education and skills in self-management instruction of primary care physicians' office staff. Nurses, administrative staff, dietitians, and office managers play key roles in fostering diabetes control.

Third-Party Reimbursement

Reimbursement for services is a major issue. The willingness of third parties to pay for diabetes care and education varies widely in the United States and in North Carolina. Failure to reimburse the costs of diabetes self-management instruction and education is a problem, as are limitations on the coverage provided for examination, evaluation, and treatment. Lack of funds is a barrier to appropriate self-management instruction.

Recommendation 4. Seek third-party reimbursement for diabetes management.
Strategies:
- Encourage adequate reimbursement and coverage for diabetes care supplies, medication, and education by all insurance companies, Medicaid, and Medicare.
- Conduct a survey to determine the status of third-party reimbursement.
- Request that third-party insurers cover diabetes education.
- Reimburse only diabetes programs that provide education developed according to the National Standards for Diabetes Patient Education Programs.
- Reimburse coordinated team care that uses group classes as well as individual, one-on-one education.
- Expand public and policy-maker awareness of the health and cost benefits of providing diabetes care supplies, medication, and education.
- Monitor the development of the North Carolina Health Plan (Jeralds-Ezzell-Fletcher Health Care Reform Act of 1993) to assure that diabetes supplies, medications, and education are included as a basic benefit.

Community Outreach

Certain factors increase the risk of developing Type II diabetes: obesity; a strong family history of diabetes; mothers of infants weighing over nine pounds at birth; ethnicity (black, Native American, or Hispanic). Individuals at high risk may be unaware that they have diabetes and unaware of its consequences.

The tasks of early diagnosis, enrollment into the health care system, and education to prevention complications can be carried out by trained health professionals other than physicians. Persons with diabetes and their families need to learn how to manage their disease and understand accepted standards of care such as blood glucose control to prevent acute and chronic complications. A community outreach program tailored to high-risk individuals is needed to combat diabetes in North Carolina.

Recommendation 5. Develop a community education program that local communities can use to reduce the burden of diabetes.
Strategies:
- Develop a guide to help communities identify, convene, and develop diabetes prevention and control leadership.
- Implement volunteer programs (coordinated by the North Carolina Diabetes Control Program, the American Diabetes Association, and social and civic organizations such as the Community Health Advocacy Program) to train community health leaders.

- Provide education about diabetes at sites where individuals are most comfortable—places of worship, senior centers, civic groups, or workplaces.
- Establish support groups for people with diabetes and their families.
- Use the media to highlight the magnitude of the problem posed by diabetes and the barriers to minimum care.
- Link diabetes control efforts with existing health networks.
- Develop a statewide information clearinghouse on educational programs, available resources, and service organizations involved in diabetes-related projects.

> "North Carolina needs...to reduce the burden of diabetes and provide cost-effective services to its residents."

Statewide Advisory Committee

North Carolina needs a statewide plan to reduce the burden of diabetes and to provide cost-effective services to its residents. It should be a collaborative effort of the Diabetes Control Program and leaders from the public and private sectors. A statewide advisory committee, representing individuals and organizations concerned about diabetes could help formulate policy, set priorities, and develop plans for diabetes initiatives and activities in North Carolina. Such a committee would help improve the health and quality of life of North Carolinians and position the state as a national leader in diabetes prevention and control.

Recommendation 6. Establish a statewide Diabetes Advisory Committee to:

- Develop a state plan for diabetes control.
- Advocate reimbursement for diabetes evaluation, treatment, supplies, and education.
- Build state and local diabetes coalitions.

Current Progress

In the two years following the 1993 leadership conference, the Diabetes Control Program has refocused its approach to developing and implementing the above recommendations. The Diabetes Control Program increasingly directs its attention to assessment and to population-based services and policies, congruent with evolving health reforms. Comments on specific aspects of our activity follow:

I. Define the burden of diabetes. The Diabetes Control Program is determining the incidence, prevalence, mortality, morbidity from complications, and costs of diabetes in North Carolina. We are underwriting a comprehensive information base for strategic planning and evaluation of personal health care delivery and public health systems. This information will inform the public, policy-makers, and health professionals about North Carolina's needs and progress in diabetes prevention and control.

II. Develop new approaches in diabetes control. The Diabetes Control Program: 1) stimulates networking by organizations involved with diabetes to coordinate efforts, share resources, and develop consensus guidelines; 2) encourages provision and coverage of key diabetes services in managed care plans; 3) develops community-based public health programs; and 4) provides technical assistance for the development and use of professional and patient education resources.

III. Implement specific strategies in diabetes control. In 1994-1995 the Diabetes Control Program: 1) funded eight public health departments to conduct Diabetes Today, community-wide planning for county or region-specific needs; 2) developed a memorandum of understanding with the community college system to provide diabetes patient education; 3) supported the training of public health staff at the ECU School of Medicine Diabetes Clinical Fellowship program; 4) convened two statewide professional conferences; and 5) established the state Diabetes Advisory Council.

IV. Coordinate and integrate efforts. The Diabetes Advisory Council advises and works collaboratively with the Diabetes Control Program to: 1) develop a state diabetes control plan incorporating the strategies identified by the leadership conference; 2) forge new partnerships; and 3) improve advocacy for diabetes control.

> "The Diabetes Control Program encourages provision and coverage of key diabetes services in managed care plans."

The Council met first in October 1994, and has since named four task forces (patient and professional education; resource availability; patterns of care; leadership and advocacy) to spearhead the recommendations of the conference. The breadth of experience, knowledge, leadership, and dedication of the Diabetes Advisory Council and its task forces will position North Carolina to develop and implement effective diabetes prevention and control into the next century. ❑

Authors' note: For questions or additional information, contact Betty Lamb, RN, MSN, at 919/733-3355.

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Science & Technology	★★★★★	★★★★★	★★★★★	–
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Use of Subdermal Contraceptive Implants in a Community-Based Family Planning Program

Experience After Two Years

Maurice B. Mittelmark, PhD, FACE, William B. Hansen, PhD,
Beletshachew Shiferaw, MD, MPH, and Douglas D. Bradham, PhD

In February 1991, the Food and Drug Administration approved levonorgestrel implants (Norplant®) as a subdermal contraception system.[1] A growing number of family planning programs, including the one in Rutherford County, North Carolina, now offer the option of subdermal contraception. Other communities in North Carolina may benefit from the Rutherford County experience in using subdermal contraception in a family planning initiative. There are, in fact, very few published reports about this type of contraception,[2-5] and none that we could find related to the experience of local communities (town, city, or county). Experience with levonorgestrel implants is well described outside the US,[6-11] but these reports may have limited relevance here because of differences in culture, life-style, and medical care systems.

In this paper we report the early experience with subdermal contraception in Rutherford County, a mostly rural community of 57,000 inhabitants located in southwestern North Carolina. Rutherford County community leaders from education, medicine, business, government, religion, and public health formed a coalition to sponsor a community-based, interagency family planning program. The impetus for this was a needs assessment in which the local United Way asked 190 community leaders and involved citizens to rank issues in terms of potential importance to the welfare of the community. The issues considered covered marriage and family problems, planning and coordination of services, child care, delinquency prevention, employment, alcohol and drug services, crime prevention and public safety, education, and teen pregnancy prevention.

Prevention of teen pregnancy led the list, resulting in the formation of the Rutherford County Family Planning Council, underwritten by funds from local sources and grants from several foundations. The Council endorsed several approaches to promoting responsible sexual behavior and preventing unwanted pregnancy: 1) establishment of an interagency council to oversee the program; 2) education in the schools about responsible sexual behavior; 3) creation of an information-sharing network for social service agencies; and 4) expanded, low-cost or free family planning services.

The pregnancy prevention message to young persons emphasized abstinence from sexual intercourse. Those seeking contraception were provided with information about condoms, contraceptive foam, oral contraceptives, and levonorgestrel. In this report we consider the community's experience with the levonorgestrel portion of the program.

Methods

During the two-year period beginning in January 1992, levonorgestrel implants were provided with funds from a special grant, obtained by the coalition, for women not eligible for medical assistance benefits. Implants were inserted at the county health department and in local physicians' offices. All implanted patients had their name, date of birth, and date of implantation registered at the district health department; when implants were subsequently removed, date of and reasons for

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At the time of this writing, Dr. Mittelmark was with the Section on Epidemiology, Department of Public Health Sciences, Bowman Gray School of Medicine, Winston-Salem. He is now affiliated with the Research Center for Health Promotion, Department of Psychosocial Science, Bergen, Norway. Drs. Hansen, Shiferaw, and Bradham are with the Center for Human Services Research, Wake Forest University, Winston-Salem 27157.

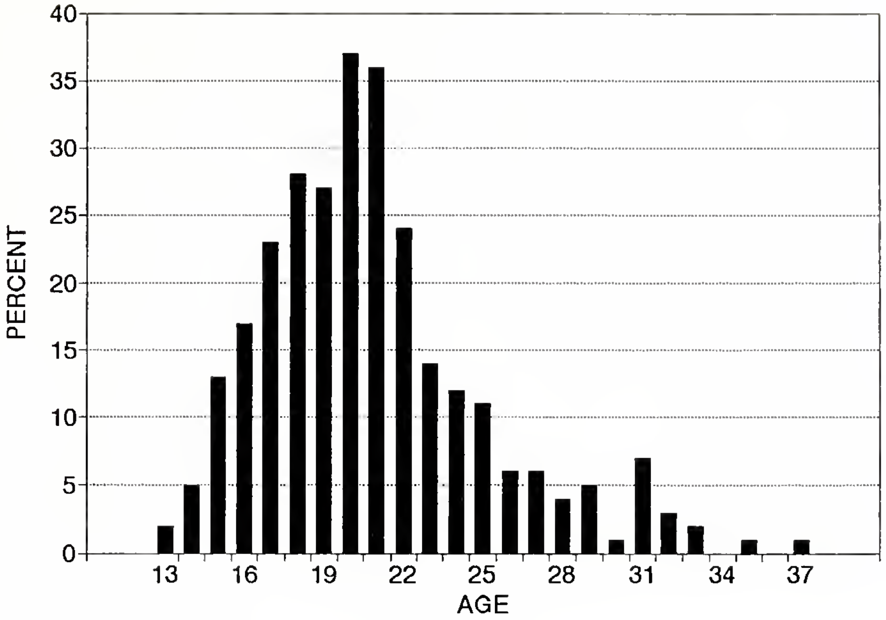
removal were recorded. Other registry information included records of each patient's attendance at scheduled follow-up visits, payment method (medical assistance or special grant), and reported complications. To insure confidentiality, patient names were excluded from the data analyzed in the present study. No data on patients' race or ethnic origin were collected by the health department.

To obtain self-assessment and information about family planning by adolescent girls, we also conducted a survey in the public high school, during which students completed a confidential, self-administered questionnaire.

Results

The first implant was performed in January 1992, and the program continues as of this writing. We present results for the two-year period ending December 1993, during which time 287 implants were performed on residents of Rutherford County as well as of adjacent McDowell and Polk counties. The three counties form a unified district health department. The community-wide education program focused on Rutherford County, but there is substantial interaction between residents of the three counties, and inevitable "spill over" of the education program to the other two counties.

The mean age of patients at the time of implantation was 20.7 years (Figure 1, at right, top); 27% were 17 years old or younger; 32%, between ages 18-20; 34%, between ages 21-25; and 13% older than 25 years of age. No age was recorded for three patients. A total of 115 of the implants (40%) were provided to women 13 to 19 years of age, the target population of the family planning initiative.



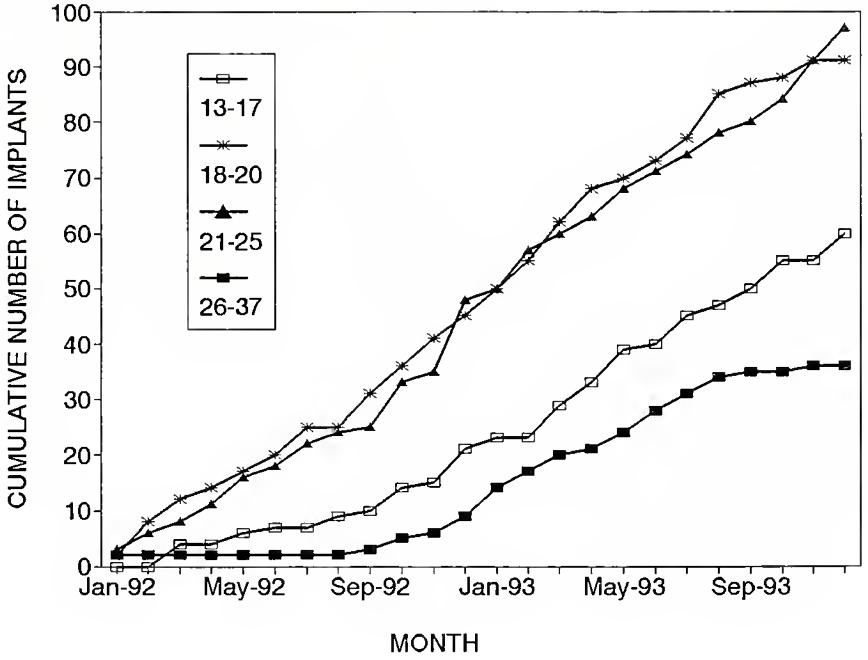


Fig 1 (top): Age at time of implant. **Fig 2 (bottom):** Cumulative number of implants for four age groups.

Since the 1993 population of women ages 10-19 in the three counties was estimated at 6,632, the two-year rate of insertion was 17.3/1,000 women in this age range, compared to an insertion rate of 20.8/1,000 for women aged 20-29.

Figure 2, at right, bottom, shows the cumulative implant rate during the two years for the 284 patients whose age at implant was recorded. The implantation rate was highest among those 18-25 years of age and lowest among those 26 years and older. The rate varied little from month to month during the two-year period for the group aged 18-25, but there was a perceptible increase in rate among the youngest and the oldest patients beginning in summer 1992.

Method of payment for implantation was recorded for 284 patients; 69% paid by medical assistance and 31% were supported by the grant from a philanthropic foundation because they were not eligible for medical assistance.

Twenty-four patients (8%) had their implant removed during the study period; seven were aged 13-19 at the time of removal, 15 were aged 20-24, and two were 25 or older. Table 1, next page, shows reasons for removal in the 24 patients.

Eighteen cited only one reason for removal, four cited two reasons, and two cited three. The most frequent complaint, cited by a quarter of the patients, was psychological distress. Time between implantation and removal was recorded for 21 patients; the interval was three months or less for 14%, 3-6 months for 24%, 6-12 months for 29%, and a year or more for 33%.

Patients did not attend 35% of the 251 three-month follow-up visits scheduled during the study period. There was no association between attendance at follow-up visits and removal of implants.

The limited data contained in the implant registry do not permit us to assess the contraceptive methods used by Rutherford County adolescents. However, data from our school-based survey indicate that 25 of the 1,089 respondents (2.3%) used implants. Among the 596 respondents reporting ever having sexual intercourse, 4.2% had implants; 1.8% used a diaphragm; 27.5%, condoms; and 15%, oral contraceptives.

Discussion

We have no data from other community-based programs to compare directly with the levonorgestrel implantation experience in Rutherford County. However, there are reports from family practice clinics and primary care practices in Texas, Maryland, and California.[2-5] The mean age of levonorgestrel implant recipients in Rutherford County (20.7 years) was younger than that reported in Baltimore (24 years)[3] and San Francisco (28.4 years).[4] A higher proportion (21%) of Rutherford County implant patients were school-age minors than in Texas (11%),[2] and Baltimore (16%).[3]

Only a few comparisons of rates of attendance at follow-up visits and rates of implant removal can be made because of varying length of follow-up in other studies. In Rutherford County, 65% of scheduled three-month follow-up visits were attended, compared to less than 25% of scheduled one-month follow-up visits in Baltimore. The rate of removal at six months post-implant was 6%-8% in Galveston,[5] 2% in Baltimore,[3] and 4% in Rutherford County.

Table 1. Reasons for removal of implant

Reason	**n**	**(%)***
Psychological distress (irritability, anxiety, mood swings, personality change)	6	25.0
Headaches	5	20.8
Desire to become pregnant	4	16.7
Bleeding	3	12.5
Medically contraindicated	3	12.5
Weight gain	2	8.3
Nausea	2	8.3
Leg pain	1	4.2
Dizziness	1	4.2
Breast tenderness	1	4.2
Seizures	1	4.2
Other	3	12.5

*Percentages total more than 100 percent due to multiple responses

It is also difficult to compare reasons for implant removal because of methodological differences among studies. One noteworthy comparison is that desire to become pregnant was the motivation for removal in 6% of the San Francisco sample compared to 17% of the Rutherford County group. This may reflect the large range of ages of patients in the two studies.

The use of levonorgestrel implants in community-based pregnancy prevention programs is potentially controversial. Public reaction in Rutherford County, where traditional, conservative values are common, has not been markedly negative. This may be due to several factors. The community has sought a balanced approach in its efforts to reduce unwanted pregnancy, and levonorgestrel implantation is but one strategy. The program's main educational messages stress responsible sexual behavior. Community leaders in education, medicine, business, government, religion, and public health actively worked together to plan and implement the program. These leaders see the levonorgestrel implant component as a demonstrated success, and would like to continue to enhance the program, in particular by improving the follow-up visit attendance rate. ❑

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Commentary

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North Carolina physicians who offer Norplant® will find the article by Mittelmark et al relevant, especially if they've experienced difficulty removing the capsules or questioned their cost-effectiveness. When less than 95% of patients retain the capsules for less than five years, other types of contraception become more cost-effective.[1,2] The experience of Mittelmark et al resembles our own, particularly the differences in patient use depending on age. Their follow-up is not long enough, though. In our own clinic, about 20%-22% of women have requested that Norplant® capsules be removed after the third year. The most common reasons for removal are: irregular bleeding, hair loss, and headaches. About 20% of women had headaches while on Norplant® which resolved only when the implants were removed. Some patients find Norplant® more acceptable and tolerant when it is inserted immediately postpartum, possibly because the procedure is covered by insurance during this period.

Up to 60%-70% of patients miss or have irregular periods during the first year of Norplant® use.[3] We have found that cycling these patients with low-dose birth control pills for two or three months corrects this. Another problem concerns the technical difficulty of removing the implants.[4,5] Dr. Mittelmark and his colleagues say little about the potential difficulty in removing the implants. Removal is especially difficult if the capsules were deeply imbedded, displaced, or broken. About 2% of the more than 350 Norplant® insertions we have conducted have migrated. Skill in placement certainly is helpful, and we have suggested that Wyeth-Ayerst include a marker so that the capsules can be identified radiographically.[5]

The initial response to Norplant® was enthusiastic, especially among teenagers and other women who had difficulty with oral contraceptives, condoms, and diaphragms. However, Westfall found that only 86% of patients continue for more than two years.[1] Clearly, counseling and a complete physical and psychological exam are important before Norplant® insertion. We need more data and more experience with this method of contraception. I am glad to read about the experience of some North Carolina women. I commend the authors for giving us this early evaluation of patients in Rutherford County. ❑

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Official Call
House of Delegates

House of Delegates
Meetings Scheduled

Notice to:
Delegates, Alternate Delegates, and Officials of the North Carolina Medical Society, component medical societies, and specialty societies

Sessions of the House of Delegates will convene at the Pinehurst Resort and Country Club, Pinehurst, NC, at the following times:

Friday, November 10, 1995 - 8:30 am - opening session
Sunday, November 12, 1995 - 9 am - second session

A member of the Credentials Committee will be present at the Meeting Registration Desk on Thursday, November 9, 1995, from 3-5 pm, and Friday, November 10, 1995, from 8-9 am, to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegates must wear their badges to be seated in the House of Delegates.

Reference Committee Hearings

Reference Commitee hearings are scheduled to begin:

Friday, November 10, 1995 - 2 pm

Thad B. Wester, MD, President
H. David Bruton, MD, President-Elect
John A. Fagg, MD, Speaker
Charles L. Garrett, Jr., MD, Vice-Speaker
Carolyn R. Ferree, MD, Secretary-Treasurer
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November 30–December 4, 1995
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- The changing environment and the value of self-governance;
- How to reengineer and improve medical staff functions and processes;
- The attributes of a successful self-governing physician organization (PO);
- The components of governance and resources needed to develop a community-based PO;
- What criteria should be utilized in making partnering decisions; and
- How to manage risk, respond to legal and logistical challenges, and raise capital.

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Adult Depression

A Treatable Condition

David A. Ames, MD

Depression is a state of persistent sadness. Everyone experiences periods of sadness at some time of his or her life, perhaps following a death, a loss, or a failure. We all know something of what the depressed person feels, but the persistence of these feelings over long periods of time and the inability to shake them is what separates depression from experiences of sadness. These states of unchanging darkness and despair are some of the most painful and crippling illnesses that a physician can be called upon to treat.

What is depression?

Depression is a disturbance of mood marked by feelings of sadness with frequent crying and loss of pleasure and interest in life. Depressed individuals no longer do the things they used to do for fun, and old pleasures give them no happiness. They no longer visit friends and prefer to be alone. Depressed persons become sensitive and irritable; little things upset them. What was once important loses its significance. They no longer take care of their appearance and customary chores go undone.

Along with the alterations in mood come other changes in the depressed. Thought processes change. The person worries all the time about a thousand different things, and the future looks black and hopeless. They are tense and cannot relax. Their mind goes from one concern to another, and as a result, they cannot concentrate on any one thing. People who cannot concentrate have problems remembering and may complain of a failing memory. As the mind gets sick, the body loses its vitality. Energy is reduced. The person has no get-up-and-go, sits or lies around all day long, and tires easily.

The feeling of being rundown often brings the patient to see a physician. The person knows that something is wrong and believes it is a physical problem. Other bodily functions change. They lose their appetite and do not get hungry. When they do eat, they are quickly filled. As a result they lose weight. Sleep habits deteriorate. Depressed people finds it hard to go to sleep because they cannot relax. They may wake up during the night and early in the morning. They feel as tired in the morning as when they went to bed. Dreams are nightmarish. All other physical conditions worsen as depression grows and the span of life itself is shortened.

David A. Ames, MD, is a psychiatrist in Greenville, NC.

Depressive illnesses are becoming more frequent in the population. The most recent national study shows that in any 12-month period, 11% of adults suffer from a mood disorder (primarily depression) and 19% will have such an illness in their lifetime. But depression is not restricted to adults; most depressions start in adolescence and are just as common in that age group. Depressions tend to recur. For some, the illness will return infrequently but others experience depressed moods all the time. Such a person may say, "I can't remember when I last felt happy."

Depression can be a severe burden to the patient, his or her family, and society. The years of lost productivity make this illness as costly to society major heart disease or cancer. A depressed adult is unable to fulfill his or her responsibilities as a parent, which profoundly affects young children. A person overcome with feelings of hopelessness may commit suicide.

Causes

The exact cause of depression is unknown and indeed is probably due to more than one cause. Usually doctors think of three types of causes: biological, developmental, and experiential.

Biological factors include genetic and biochemical influences. Many depressed persons, possibly most, have inherited a tendency to develop this illness. Depression often runs in families. Depression is associated with biochemical changes, the imbalance of key chemical substances that control brain cell function. Drug treatments correct the levels of these brain chemicals.

Developmental factors are hurtful childhood experiences that permanently damage the growing personality and result in adults who become easily stressed. These adults can function adequately depending on the situation in which they find themselves but are unable to cope with serious losses or setbacks.

Experiential factors are also associated with depression. Everyone has experienced sadness after the loss of a valued person or thing. The healthy person is able to continue functioning, grieve the loss and recover. The person who is prone to depression is overwhelmed by the loss; he or she does not adapt or cope. Depressions frequently begin after some loss, but not always. Physical changes such as decreased sunshine during winter months or certain drugs can set off a depression Sometimes no changes at all can be identified; the person says, "I have no reason at all to be depressed, but I am."

Treatment

It's important to note that depression is a highly treatable illness. There is a common perception that mental illnesses are incurable, that the sufferer is condemned to losing his or her mind. The depressed person may feel that way, but the truth is actually far different. Nearly all depressed people who receive treatment experience some relief and between 80% and 90% recover. Treatment outcomes are as good as expected with many other medical conditions.

Medications used to treat depressed moods are known as antidepressants. These medications were first developed about 1960 and have been used ever since. The newest antidepressants are simple to use and have few side effects. Patients take one pill a day and may soon begin to notice a change. They worry less, tension decreases and their mood brightens. Sleep improves and so does energy. In three or four weeks the patient feels much better. Usually the medication must be taken for four to six months, after which discontinuation can be considered. Only those patients who experience recurrent depressions must take the drug for a longer period of time.

Psychotherapy involves a verbal interaction between a trained professional and a depressed patient. The goal is to help the patient understand what sets off their depression, how they can avoid those situations and how they can cope with depressed feelings. In many cases this type of treatment is sufficient to cure the illness. More severe cases require a combination of medication and psychotherapy.

Are you depressed?

The best way to determine whether you are depressed is to visit a physician or mental health professional for an examination. However, there are evaluation tools that may be useful as screening devices. The Beck Depression Inventory in Figure 1 is one such tool that may be completed by anyone interested in rating his or her own mental state. If you score in the depressed range, antidepressants can be prescribed by a family doctor and may be sufficient. Psychotherapy alone may also be sufficient.

For more severe or longstanding depressions however, the patient should be treated by a mental health professional and receive a combination of antidepressant medication and psychotherapy. Psychiatrists are medical doctors who have had special training in the treatment of mental illnesses and can prescribe medications and provide psychotherapy. Psychologists are not medical doctors but are also specialists in the treatment of the mentally ill and provide psychotherapy. Other professionals who can provide psychotherapy include clinical social workers and psychiatric nurse specialists. Treatment can be obtained in private office practices or in public mental health centers.

Instructions for completing the Beck Depression Inventory

In each of the 21 items, circle the statement that best describes your condition. Then add the numbers of all 21 items to get a total score and compare the result with the table. If you score in the depressed range you should seek professional advice.

Beck Depression Inventory

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failure.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
   1 I am critical of myself for my weaknesses or mistakes.
   2 I blame myself all the time for my faults.
   3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

10. 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11. 0 I am no more irritated by things then I ever am.
1 I am slightly more irritated now than usual.
2 I am quite annoyed or irritated a good deal of the time.
3 I feel irritated all the time now.

12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.

14. 0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.

15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

16. 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.
1 I have lost more than five pounds.
2 I have lost more than ten pounds.
3 I have lost more than fifteen pounds.

20. 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains, or upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think about much else.

21. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

Interpreting the Beck Depression Inventory

Total Score	*Levels of Depression**
1-10	These ups and downs are considered normal.
11-16	Mild mood disturbance.
17-20	Borderline clinical depression.
21-30	Moderate depression.
31-40	Severe depression.
Over 40	Extreme depression.

* A persistent score of 17 or above indicates you may need professional treatment.

Your Score:________________

Date:______________________

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The Interdisciplinary Geriatric Team Evaluation Project

A New Approach to the Delivery of Geriatric Medicine in Geographically Remote Locations

Mark E. Williams, MD, Donna J. Rabiner, PhD, and Rebecca H. Hunter, MEd

Multidisciplinary team practice is new to rural health care. In this setting, physicians have generally worked in isolation, occupied positions of singular authority over the health care of their patients, and rarely interacted with clinical colleagues or other health or social service providers outside their communities. The hours are long, peer support is often limited, and care may be compromised by lack of access to hospital facilities, lack of financial reimbursement, and lack of health care providers. Rural physicians continue to be satisfied in their role as central providers of primary medical care and managers of acute illness, but there is already danger that this satisfaction is being eroded by isolation, by concern about losing touch with current modes of practice, and by frustration with a complex health care bureaucracy.

The care of frail older adults is particularly challenging in rural communities. Most rural primary care physicians can spend only limited time with individual older patients and they are poorly reimbursed for this time. This poses a dilemma to the generalist physician who recognizes the importance of thoroughly evaluating each patient and consulting with colleagues about recommended care plans on the one hand, and having too many cases and too few resources on the other. Few generalist physicians have received specific training in geriatrics or in how to work with other professionals who can provide community-based health and social services. This situation creates the opportunity for innovation and change.

We describe here a model of health care delivery, designed to enrich geriatric care by focusing on cooperation and teamwork. It facilitates the management of identified medical and social problems by providing relevant information and clinical expertise. First we describe how a rural community health care center developed a large and successful non-profit interorganizational network in two rural northeastern North Carolina counties and became the site of an innovative Interdisciplinary Geriatric Evaluation Clinic. Next we describe the development of that clinic as a means of providing intensive interdisciplinary attention to older adult patients with multiple problems, using health and social service providers, and involving the patient and key family members in decision-making. We conclude with a discussion of implications of this innovative strategy for clinical practice and public policy.

Significance of the Setting

The history of the rural community health sites in Northampton and Halifax counties, known as the Rural Health Group Consortium,[1] parallels the development of American rural health policy during and after the 1970s. During the 1970s, several federal programs were established to provide necessary medical care in underserved areas, and health care professionals were trained to provide primary medical care services in rural communities.[2,3] Programs developed involved manpower training, federal grants, and outreach and educational initiatives such as Area Health Education Centers (AHECs), and financing initiatives, such as the Rural Health Clinics Act.[2]

The Roanoke Amaranth Community Health Group, Inc., was one of the 13 centers funded by the Robert Wood Johnson Foundation in December 1978.[4] The community to be served covered 400 square miles near the Virginia border, 75 miles northeast of Raleigh. It had one of the highest infant mortality rates in the nation, and the highest rates in the state for acute myocardial infarction, cancer mortality, and severe hypertension. Most

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of the population was black, and more than one-third of families lived below the federal rural poverty level (the highest percentage of any county in North Carolina).[4]

After 1980, many federal and private programs ceased and many previously funded projects were dismantled, but the Roanoke Amaranth Community Health Group, has continued to flourish. It retains its own governing authority, but currently contracts with a single entity (Rural Health Group, Inc.) for the services of all physicians.[1,5] The Rural Health Group now includes four medical centers, employing family practitioners, obstetrician-gynecologists, dentists, nurse practitioners, physician assistants, and other support personnel.

A campus was developed between 1984 and 1992 on a site adjacent to the Roanoke Amaranth Community Health Clinic in Jackson. It includes a nursing home and home for the aged, apartments, and a senior center. This is setting in which plans were developed for an interdisciplinary geriatric evaluation clinic with assistance from UNC-Chapel Hill (UNC-CH) School of Medicine, the Area L AHEC, and the Rural Health Group.

The Interdisciplinary Geriatric Evaluation Clinic

The Geriatric Evaluation Clinic was designed to provide intensive interdisciplinary attention to older adults with multiple and interrelated problems. Relevant health and social service providers as well as the patients and their significant family members participate. This project involves an innovative approach to: 1) managing the complex health and medical problems of the elderly, 2) productive interaction between health care providers from differing backgrounds, and 3) the development of relationships with patients and their families. We believe the project represents a dramatic departure from the way health care was previously provided to frail older adults .[6]

Each month, an interdisciplinary team from the UNC-CH Program on Aging joins a local interdisciplinary team in Jackson. The UNC-CH team comprises a geriatrician, geriatric nurse clinician, and a geriatric social worker, and is sometimes augmented by a geropsychiatrist, geropharmacist, geriatric dentist, and other allied health professionals. The Jackson team includes physicians from the health care center and the nursing home, nurses, social workers, a pharmacist, and a nutritionist as locally available and important to a given case.

Team visitation involves three objectives: 1) to increase the geriatric expertise of community health professionals, 2) to develop an appreciation of available resources and strategies for geriatric problem solving, and 3) to help university-based faculty understand the problems faced by community practitioners so that they can make geriatric teaching correspond to these problems.[6]

The first objective is accomplished by education about common, perplexing geriatric conditions in a non-judgmental, mutually supportive environment; by changing practitioner perspectives from a focus on diagnosis to a focus on how to help the patient function; and by helping practitioners use time effectively, listening to the patient more and doing fewer unnecessary, habitual procedures. The second objective is accomplished through interdisciplinary role-modeling at team meetings, and by inviting local health practitioners and students on rotation to participate in the discussion. The third objective is accomplished by sharing approaches to problems and by learning together so that team members become aware of the issues faced by community practitioners and how they handle them.

Clinic Operation

All participants at the Geriatric Team Evaluation are free to share their feelings and expertise in a mutually supportive environment. The Interdisciplinary Geriatric Evaluation Clinic is based on a model refined by Dr. Mark Williams. We summarize here the roles of the key participants and the typical flow of the assessment process.[6]

The physician's role includes performing the medical history and physical examination (conducted with minimal use of medical equipment), evaluating mental status and mood, ordering relevant laboratory tests, monitoring medical therapy, and communicating with other physicians, staff, and community agencies about medical issues involved in the care plan. The physician also generally leads the clinic "wrap-up" conference.

The nursing team carries out comprehensive nursing assessments, makes home visits (as needed), and coordinates the care plan. Nurses explore the reason for the initial referral, and assess functional activity, psychosocial function, coping and adaptation to illness, and behavioral issues. The functional evaluation assesses vision, hearing, communication skills, performance of basic activities of daily living, mobility, instrumental activities of daily living (shopping, handling finances, performing housework, and taking medication), and basic nutrition (meal planning and food preparation). Psychosocial functioning reviews activities performed in a usual day, use of tobacco or alcohol, hobbies and special interests, and sleeping habits. The nursing evaluation includes a psychobehavioral assessment of concentration, judgment, personal hygiene, potential for physical or emotional abuse, and other behavioral characteristics.

Social workers assist the patient's family (or caregiver) and community agencies in determining how the patient's care needs can best be met. Social workers also serve as advocates for the patient's family (or caregiver) and relate the family dynamics and feelings of family members to other team members. Important information obtained by the social worker includes the type and location of the usual living arrangement of the patient, the characteristics and strengths of his or her social network, any significant losses experienced, the individual's former occupation, retirement age, and any other relevant psychosocial information. When the evaluation team determines that community services would be worthwhile, the social worker often makes the necessary arrangements. In addition, social workers may contact community agencies, discuss the care plans with patients and family members, and when necessary, attend case conferences at community agencies serving the patient and family. The social worker coordinates all home visits of team members.

A variety of other health care professionals and students may attend the team assessment sessions. They do not have specific roles to perform, but often provide suggestions and recommendations to supplement the team's evaluation.

The Team Evaluation is arranged so that: 1) the local team creates the agenda and selects the patient(s) to be discussed, 2) the university team assists and supports the local team, and 3) discussions occur in a supportive and caring environment. The host team is encouraged to choose their most frustrating and difficult cases. As a result, successful resolution of key issues significantly affects the local team's work. This approach allows the university team to analyze the choices made by the local team during the selection process. As the local team gains skill in managing geriatric conditions, the patients selected for interdisciplinary team attention become ever more challenging. An additional benefit is that university team members learn to use their expertise in a real-life setting with practical constraints and limited resources.

By functioning primarily as a resource and support for the local team, the university team has become a partner, not an interfering outsider or group of elite academics trying to impose "ivory-tower" opinions on the local community or scrutinizing the quality of care delivered there. Everyone is on a first-name basis throughout the meeting day, which is organized into three component segments:

Morning segment. Local and visiting team members begin by participating in the Interdisciplinary Geriatric Evaluation Clinic. A specific older adult patient, previously identified and scheduled by the local group and observed by various hosting and visiting team members, is discussed. During the two-hour morning session, there are significant opportunities for sharing ideas, informal teaching, and modeling of teamwork. The geriatrician and local medical providers demonstrate their approach to the care of patients, focusing on maximum independence and functioning. University faculty become sensitized to the issues that community practitioners face on a daily basis. They observe issues at the front lines of rural health care: how to help the very poor, some of whom depend on free drug samples because of virtually nonexistent medicine budgets; how to support family and friends who assist older adults in extraordinarily difficult situations; how to manage the medical care of individuals whose belief systems, while promoting independence, at the same time encourage delay in seeking acute or preventive care. The work of local providers and the local community is acknowledged and they are given the opportunity to share questions and concerns in a mutually supported environment. This reduces their feelings of isolation and provides important information about medical issues of a particular care plan.

Students from various health backgrounds (pharmacy, nursing, physical therapy, social work, nutrition, and medicine) come to learn about the provision of primary health care to older adults in a non-academic setting. Many students say that it is the first time that they have seen someone from their profession function as part of a team; others note the teams' focus on the whole person, reporting that they have not previously seen this perspective in action during their training or clinical practice.[6]

The patient and his or her family, the focal point of the day's activity, benefit from the collective wisdom of a group of committed professionals who are available to help with the patient's particular concerns. During the morning segment, the patient is intensely observed. The patient spends approximately one to one-and-a-half hours with the physician, and a wide variety of other health professionals frequently supplement the physician's assessment. Primary caregivers and family members meet separately with social workers, mental health personnel, and other local social service providers.

An evaluation and planning conference immediately follows each clinic session. The group discusses the case in detail and develops an appropriate care plan. The various perspectives of the multidisciplinary team are incorporated into this plan, providing a composite picture of the patient and the problems that he or she faces. Each care plan is tailored to the unique needs of patient and family.

Luncheon segment. The second segment of the day is a luncheon conference with an informal discussion of a topic in geriatrics. These meetings are flexible; topics depend on the particular interests of the team or on challenges faced during the morning session. The conferences are open to community practitioners from all disciplines and constitute an opportunity for continuing education.

The luncheon conference is designed as a non-hierarchical forum for sharing information. This approach allows considerable informal interdisciplinary team networking, collaboration, and a more subtle information sharing than can occur during the formal morning and afternoon segments. Both local and visiting team members may ask each other how they behave in specific circumstances (which may or may not be related to the cases discussed that day). Topics include the use of new drugs, advice on the care and management of specific patients, or how to provide support to a particular caregiver or family member.

Afternoon segment. The third component consists of a case consultation with staff of the long-term care nursing home facility. The process is similar to the morning session and the same basic operating rules are followed (local team members choose their most frustrating situation, etc.). At least one previously identified and scheduled patient is selected by the local team and nursing home staff for clinical evaluation and team discussion. In this setting, discussing the needs of a specific patient in a long-term care setting often leads to discussing issues of broad importance to the staff.

While other team members are evaluating the selected patient, one or more university team members may provide in-service training to local staff. These training sessions are designed to build on the local team's clinical expertise. Topics discussed include: how to cope with end-of-life issues; the management of demanding, difficult patients; and how to enhance communication between staff, patients, and families. During these sessions, "it is often acknowledged that commitment to quality of life in a nursing home is a complex and elusive concept that may force difficult choices on patients and providers alike."[6,p7]

Implications for Clinical Practice and Public Policy

The Geriatric Evaluation Clinic was developed to care for frail older individuals who have few of the resources needed to manage their physical, psychological, and emotional health. The program was designed to answer a fundamental question facing geographically isolated communities in the US and abroad: how can we bridge the geographic gap and match needs with available community services? The initial purpose of the program was to establish an outreach activity providing the medical and social services needed for elderly patients to remain healthy and function independently in geographically isolated locations.

The clinic we describe could be adapted to similar medical practice settings elsewhere, even in other cultures and countries since it is not dependent on technology. In almost any setting, a skilled physician, assisted by a team of expert clinicians from an academic or practice center, could adapt our model of the care and management of patients.

Caring for older adults in remote areas may be one of the most challenging scenarios, but an interdisciplinary geriatric team evaluation can be applied to situations in which geographic distances are a barrier to care. We hope that clinicians and policy-makers will consider the interdisciplinary team approach to help isolated patients, their doctors, and other care providers to function better. ❑

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Adverse Drug Reactions in a State Psychiatric Hospital

Van D. Weaver, PharmD, and Clare Sanchez, MD, FACP

Some 3% to 7% of all hospitalized patients are admitted because of an adverse drug reaction (ADR); another 10% to 20% of patients experience an ADR during hospitalization.[1] In recent years, the American Society of Hospital Pharmacists, the Food and Drug Administration (FDA), and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) have strongly advocated the reporting of ADRs. Hospitals, clinics, pharmacies, and nursing facilities spend countless hours and considerable resources to capture this information and put it into usable form.

The 1993 JCAHO *Accreditation Manual for Hospitals* requires medical staff to define and review all significant untoward drug reactions. It further requires the pharmacy department to review each patient's drug regimen for potential interactions prior to dispensing medications.[2] We believe that medical facilities would be wise to develop their own guidelines and mechanisms for ADR reporting, both to establish baseline levels of reactions and to provide goals for maintenance and improvement of performance. In an effort to establish a reliable baseline and to categorize the types of ADRs at Dorothea Dix Hospital, we retrospectively reviewed medical records covering seven months to identify the types of reaction, the number of occurrences, and the causative agents.

The Setting

Dorothea Dix Hospital was established February 23, 1856, when, after a vigorous crusade, Dorothea Lynde Dix convinced the public to provide medical care to the mentally ill. Located in Raleigh, the first hospital on the 350-acre, state-owned site housed 49 patients; by 1994, the current 552-bed complex served more than 164,391 total patient days. The facility provides a broad range of specialty services including geriatric and adolescent care, medical and surgical services, oncology, physical therapy, respiratory therapy, cardiac intensive care, and ambulatory surgery.

Study Variables

We retrospectively reviewed all ADR-related admissions for the period January 1 through July 31, 1993. We analyzed the collected data according to the following criteria:

1. Nature of the adverse drug reaction.
2. Identity of the causative agent(s).
3. Determination of whether the drug was a primary or secondary cause of the ADR.
4. Determination of whether the ADR had been previously documented as a potential or actual occurrence.

Definitions

We used the following definition of an adverse drug reaction: "any response to a drug or combination of drugs which, following administration in doses recognized as accepted medical practice, (a) is undesired, unintended, and/or unexpected; and (b) is potentially harmful to the patient; and (c) requires medical intervention."[3] In addition, clinically serious reactions, reactions not mentioned on the drug label, or reactions following administration of a "new" drug are reported to the FDA. We defined as "ADR admissions" all patients with an ADR admitted to the emergency care unit, whether from a building on campus or from any of five other state-operated facilities in North Carolina,

Adverse drug reaction reporting at Dorothea Dix Hospital entails the following:

1. A description of the suspected reaction.
2. The name(s) of the suspect drug(s).
3. Any specific treatment required.

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4. Any resulting prolongation of patient's inpatient stay.
5. Any residual consequences of the reaction.

The Patient Population

Patients at Dorothea Dix Hospital are either chronically mentally ill, or mentally retarded, or both. By the very nature of their illnesses, these patients require constant medical and psychiatric attention. Due to the large quantity, often at high doses, of medications often necessary, this population is at increased risk of an ADR.

Data Exclusion

Nausea, vomiting, diarrhea, and constipation are so common in this population and result from so many factors, both organic and drug-related, that we have not included them in our analysis. Nor have we included delirium tremens due to alcohol abuse or self-inflicted drug overdoses, although the authors recognize that this category is considered reportable as an ADR by the FDA. Because inpatients do not have access to medications, all self-inflicted overdoses occur in non-hospitalized individuals. We limited our study to ADRs occurring in individuals already institutionalized.

Results

A total of 358 medical emergencies were treated at Dorothea Dix Hospital from January 1 through July 31, 1993. Fifty-one of these patients came from Dorothea Dix, and the remaining 307 from the five other state institutions. Thirty of the 358 emergencies (8%) were due to documented ADR. A total of 312 days of hospital care were required to treat these 30 episodes (mean duration = 10.4 days).

The average age of patients with an ADR was 53.7 years, and the median age was 55 years. Fifteen events occurred in males (age range 16-85) and 15 in females (age range 24-85). Lithium was the drug most often responsible for an ADR with seven events; phenytoin and haloperidol followed with three events each; nine drugs produced one reaction (Table 1). In each case, literature review verified that the ADR had been previously reported and could be anticipated.

Eight ADRs were categorized as having miscellaneous or secondary causes (Table 2) because drugs were either an indirect cause, a secondary cause, or part of a multidrug etiology. In one instance an ADR

Table 1. Adverse drug reactions and primary causative agent

Causative drug	Adverse drug reaction type (number of occurrences)
Lithium 7 events	Sudden onset bradycardia (1) Nephrogenic diabetes insipidus (2) Drowsiness and lethargy (2) Generalized weakness (1) Lethargy and tremor (1)
Haloperidol 3 events	Parkinson-type tremors (1) Anemia (1) Neuroleptic malignant syndrome (1)
Phenytoin 3 events	Leukopenia (1) Intermittent mild seizure activity (1) Lethargy and decreased appetite (1)
Ranitidine	Extreme rash (1)
Carbamazepine	Erythema mutliforme (1)
Bupropion	Orthostatic changes (1)
Nortriptyline	Tachycardia, diaphoresis, disorientation, confusion (1)
Molindone	Leukopenia (1)
Isoniazid	Hepatitis (1)
Clozapine	Syncope (1)
Rifampin	Acute renal failure (1)
Fluphenazine	Extrapyramidal symptoms (1)

Table 2. Miscellaneous or secondary drug causes

Causes	Reaction
Aspiration of emesis after intestinal lavage solution	Aspiration pneumonia
Anxiety and alprazolam dependence	Tachycardia
Abrupt withdrawal of lorazepam	New onset seizure
Asymptomatic, elevated blood level; secondary diagnosis, not a reason for admission	Dilantin toxicity
Toxic blood levels of digoxin, theophylline	Atrial fibrillation
Manifestation of disease, exacerbated by zidovudine and trimethoprim/sulfa	Anemia
Multiple psychotropic medications	Extrapyramidal symptoms
Amantadine suspected, not proved	Mental status changes

for a "change in mental status" was thought to be due to amantadine therapy, but the patient was taking other drugs that were suspect. Amantadine was discontinued, and after several days, the patient returned to his normal state. Since the exact cause of the changed mental status was not defined, this entry appears in Table 2, not Table 1.

Even though the 30 ADRs were ascribed to reasonably well-defined causative agents, the reader should note the high drug use of these patients. The 30 patients were taking a total of 113 drugs (not including aspirin, acetaminophen, vitamins, laxatives, stool softeners, or insulin), an average of almost four drugs per patient!

Cost of the ADRs

The 30 adverse drug reactions led to 312 days of specialized care. At Dorothea Dix Hospital, costs are allocated on a per diem basis, and care in the Medical/Surgical Intensive Care Unit costs $325/day more than routine care; for patients admitted from the other five state facilities, the cost is $540/day. The average excess cost for each adverse drug reaction was $5,250; the total cost for the seven-month study period was $157,515 ($270,025 per year).

Since Dorothea Dix Hospital is a state-owned facility, the budgeted premium cost of $325-$540/day is low by most hospital operating standards. The per diem premium cost would be greater in private hospitals.

Conclusions and Recommendations

This report includes only incidents that required specialized attention. We did not include "everyday" reactions such as nausea, vomiting, diarrhea, or constipation. Since most patients took multiple drugs daily, they were at risk for a high rate of ADRs.

Physicians should take special heed of the drugs identified as having the greatest potential for causing an ADR. Our study identified three drugs: lithium, haloperidol, and phenytoin. Although we have no data on how often these drugs were prescribed, and therefore cannot calculate the rate of ADR, we believe that patients on these three drugs deserve extra surveillance, especially in psychiatric facilities. All personnel should be familiar with the signs and symptoms of adverse reactions to these drugs. And every hospital ought to develop its own list of commonly offending drugs, recognizing that the list will be constantly changing.

Testing of plasma drug levels can help if doses are adjusted or alternate drugs used when indicated. When newly developed drugs become available, medical personnel should be especially mindful of the potential for previously unreported adverse events. Education before use should be standard operating procedure.

The high financial burden of drug reactions is borne by the taxpayer, the insurance carrier, the third party payer, and individual families. Surveillance, reporting, post-occurrence investigation, corrective action, and follow-up are the keys to minimizing reactions and their attendant costs. Attention to these issues will lead to greater efficiency, a healthier patient population, better use of personnel resources, and a more financially favorable outcome. ❑

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Doctor as Witness, Doctor as Juror

Going to Court in a Non-Defendant, Non-Adversarial Role

Harry H. Summerlin, Jr., MD, DABFP

Physicians are often asked to appear in court as witnesses or as jurors. In this paper I give my views on how physicians should behave in non-defendant, non-adversarial situations. My objectives are to acquaint physicians with their duties, rights, and responsibilities, to prepare them to be better witnesses in hearings and court procedures, and to help them to be better jurors if summoned.

Your Role as a Witness

When a patient with a problem, say an injury from a motor vehicle accident, retains an attorney for representation in a legal action, the attorney begins to investigate the validity of the case. In step one, the discovery phase, the attorney sends written permission to any treating physicians asking for their medical records relating to the accident. The physician must be sure that the written authorization is proper, and should keep an authentic copy of the patient's signature in the medical chart for comparison. (Exception: Worker's compensation rules allow for disclosure without the patient's consent.) The original record is the property of the physician, but the patient or assigned agent has a right to a copy. It is reasonable to charge for personnel time and supply costs for making the copy.

What records should be sent? 1) Office notes—or a summary thereof—including history, physical examination, diagnosis, treatment, prognosis, and progress. 2) A statement of charges. 3) Do not send copies of other physicians' records.

After the attorney has determined that there is probable cause for suit, step two, the preparatory phase, begins. The attorney may ask for a deposition. This is usually arranged in a physician's office. Attorneys for both plaintiff and defense, a court stenographer, your patient, and the opponents may be present. You will be sworn in, examined, and cross-examined. Often the deposition is tape-recorded and a transcript later submitted to the attorneys. You have a right to a copy of the transcript, which may or may not be used in court in lieu of your appearance.

Since the trial may not take place until months after the deposition, if you are later summoned to appear in court, be sure that you read and review the deposition so that you do not contradict yourself. You may charge for your time spent making the deposition.

If the opposing attorneys are unable to reach a settlement, the case may go to court. In step three, a subpoena (Latin for "under penalty") is issued by a judge on behalf of the participants in the trial. The subpoena is a written order to appear before the court, and is served to you by the sheriff or his deputy. You must personally accept the subpoena—not your spouse, secretary, or nurse. Nor can you accept a subpoena by phone or by mail, except registered mail for which you personally sign. The document will state when and in which court you are to appear, the name of your patient, and the name of the attorney. Refusal to accept a subpoena or to see the sheriff is contempt of court—it can lead to your being arrested and fined by the judge.

To keep things working smoothly, when you get the subpoena, call the attorney's office (if they have not already called you) and find out what the attorney wants or needs from you. Offer to meet with the attorney, and remember, you can charge for your time just as the attorney will certainly be charging. It is important to know, before the trial, what the attorney wants and when. Remember, too, that if the time set for court appearance interferes with specific meetings or vacations, your appearance can be postponed by the attorneys' request, particularly if they want you to be there.

Usually the subpoena states "Monday 9 a.m. in Courtroom ____." The attorney may suggest that the court schedule, or docket, require you to appear at a later date and time. If so, the attorney's office will call you about it an hour before you are needed. Arrange your schedule so that you can drop what you are doing when you are called, and come to the courtroom.

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Appear promptly, and notify the attorney of your presence. If patient emergencies arise, be sure to call the court and the attorney's office and explain. Also be prepared to explain to the judge later. Do not be frivolous about appearing before the court when summoned to do so.

The fourth step is the court appearance. Arrive promptly. Usually someone will meet you in the hall. If not, go into the courtroom and let the attorney know that you are there. Dress comfortably—hospital scrubs and jeans are not appropriate. You are a professional witness, so dress like one. Dressing casually gives the impression that you are not taking the court seriously.

When called to the witness stand to be sworn in, speak clearly and audibly. You will probably be sworn as an expert witness rather than witness to the fact, but you should confirm this with the attorney before the trial. Expert witnesses can give opinions; fact witnesses cannot. The attorney may read your full curriculum vitae into the record to impress the jury with your credentials and increase your credibility. Sometimes the opposing attorney may try to cut this short. Let the attorneys figure out how much they want in the record. You may want to bring your office records and copies of hospital records with you. You can refer to these during the testimony. Remember that both attorneys already have copies of your records, so make sure they are never altered in any way.

During the trial the attorneys ask the questions. Your answers are meant to be heard and understood by the jury. The judge monitors all that occurs. Don't rush when answering. If there are objections, the judge will not want you to answer until he or she has rendered a decision. Besides, a pause is an indication of a thoughtful answer. Respond "Yes, sir," or "No, ma'am," as appropriate, not "Uh-huh." The court stenographer records the proceedings, and head motions and guttural responses cannot be recorded. If you do not respond appropriately, the judge will reprimand you. Address the judge as "Your Honor," even if he or she is your best friend or neighbor. If you do not fully understand a question, ask that it be repeated.

Use language and terms that the jury and an average patient can understand. Do not be condescending or too medically technical, unless specifically asked to do so; then interpret the medical terminology. Sometimes an attorney will try to sound knowledgeable by using medical terms. The jury will appreciate it if you repeat the terms with a simpler explanation. As a witness, the physician's role is to provide information, not to advocate a position, so just answer the question. Do not give opinions unless asked to do so. You may want to explain or add to what is being said, but the judge or attorney will stop you.

The judge may ask you not to answer some questions. Volunteer nothing. If the opposing attorneys overlooked a relevant fact, that is their problem, not yours. If you do not know an answer, state so; do not try to bull your way through. And do not guess. Try not to show exasperation, boredom, fatigue, or anger, even if you are being attacked by the opposing attorney.

Do not joke, use foul language, or give flippant answers. Look at the jury when answering—they are the ones who decide the issues being tried. Once you have been told to step down from the witness box, you may leave.

Calculate your charges from the time you leave your office until you return. Charges cannot be related to outcome of the trial. Your bill may be sent to the attorney, but it is ultimately paid by the patient. The trial judge approves the physician's fee. You are free to stay in the courtroom, but you may not charge for personal time spent listening to the case. The results of the trial will not be communicated to you.

Jury Duty

Our legal system is based on everyone's right to a trial by a jury of peers. Physicians have a moral responsibility to participate in this civic duty. One judge told me, when I asked to be excused from jury duty, "You schedule time for vacation, don't you? Well, schedule time for jury duty, and we will call you then." Some counties in North Carolina—Buncombe County among them—have a "popcorn" jury system: one-day service unless the case on which you are sitting is continued beyond one day. Jury duty is not usually a burdensome responsibility.

A list of prospective jurors is prepared every two years from voter registration and driver's license lists. Jurors must be 18 years old, citizens of the US and of the county in which the case is being tried, not have been convicted of a felony, and not have been declared incompetent to manage their own affairs. Names are drawn randomly, and once drawn do not go back on the list for superior court for another two years.

Jury pay is currently $12 per day; for service over five days, $30 per day. The check is sent to the juror or to the juror's employer, if the juror is paid by the employer for time served. Many companies give the jury pay to the employee in addition to regular wages.

Valid excuses from jury duty include being housebound, bedridden, or hospitalized. If you are 65 years old and in poor health, you may be excused, and your name removed from the jury list. On the back of the summons is a place to ask for this exemption, but you must attach a physician's statement attesting to the illness or disability.

A panel of prospective jurors is customarily summoned to appear in the jury room at 9 a.m. As juries are needed, names are called and the jurors go to a courtroom. Attorneys from each side interview prospective jurors individually. You may be dismissed for specific reasons or for peremptory reasons (you are not told why). If dismissed, you return to the jury pool. If not called again, you are dismissed for the next two years. Dismissal occurs about noon, but sometimes you must return later. Bring reading material when you are on jury duty because you will spend long stretches in the jury room waiting to be called.

If chosen for a jury, you are seated in a specific chair or in the alternate jury section. After all jurors are chosen, you are sworn in by the judge, then taken by the bailiff to a jury room. There you elect a foreman. Your position as a physician will make you a likely nominee for foreman. In the jury room you are not allowed to call out or to contact others, so do not wear your beeper or bring a portable phone. The judge may grant you permission through the bailiff to make specific calls.

A bailiff will return you to the courtroom. Jurors are seated in assigned chairs to hear testimony. Many times during a trial the jury will be excused when attorneys argue before the judge over a question asked or objection raised. At times, the judge will tell the jury to disregard a question or an answer, particularly if the answers are given hastily and objections raised. After testimony and cross-examinations are completed, the attorneys for each side make closing statements. Then the judge charges the jury regarding the specific law applicable in the case, and the jury's options in arriving at a verdict.

Sometimes during the course of the trial, after jury selection and before or during testimony, the defendant may make a plea bargain so the trial will end. Most of the time the trial continues until the testimony is complete and the jury has been charged by the judge.

The foreman presides over jury discussions and voting. Jurors may ask the bailiff for transcripts to review. Decisions are based only on the evidence presented in the courtroom. The standard for decisions in civil actions is "preponderance of the evidence" and in criminal cases is "beyond reasonable doubt." After a unanimous decision is reached (or a "hung jury" declared), the jurors return to the courtroom. After the foreman announces the verdict, the judge may ask each juror to reaffirm the decision.

During dismissal for lunch, jurors are free to go wherever they want, but the judge will admonish jurors not to discuss the case, even among themselves (unless all 12 jurors plus the alternates are in private at one place). You will also be given a specific time to return to the courtroom. At about 4 p.m., unless you are sequestered, you are released for the day, again with the admonition not to discuss the case, not to read newspapers, or listen to radio, or televised accounts of the trial.

Participation in our legal system can be a satisfying, educational contribution to society. If it is approached with a positive, willing-to-help attitude, it can be an enjoyable experience (even if it does disrupt one's practice). ❑

Authors's note: Readers are encouraged to consult Body Medical/Body Legal: A Look at Health Law in North Carolina, *by Arlene J. Diosegy, published by the North Carolina Medical Society, Raleigh. Call 800/722-1350 (in NC) or 919/833-3836 for details.*

Acknowledgment: The author thanks Memorial Mission Hospital's Department of Risk Management; Claudette Warren, jury clerk of Superior Court, Buncombe County; and Dona Guffey for their help in preparing this paper.

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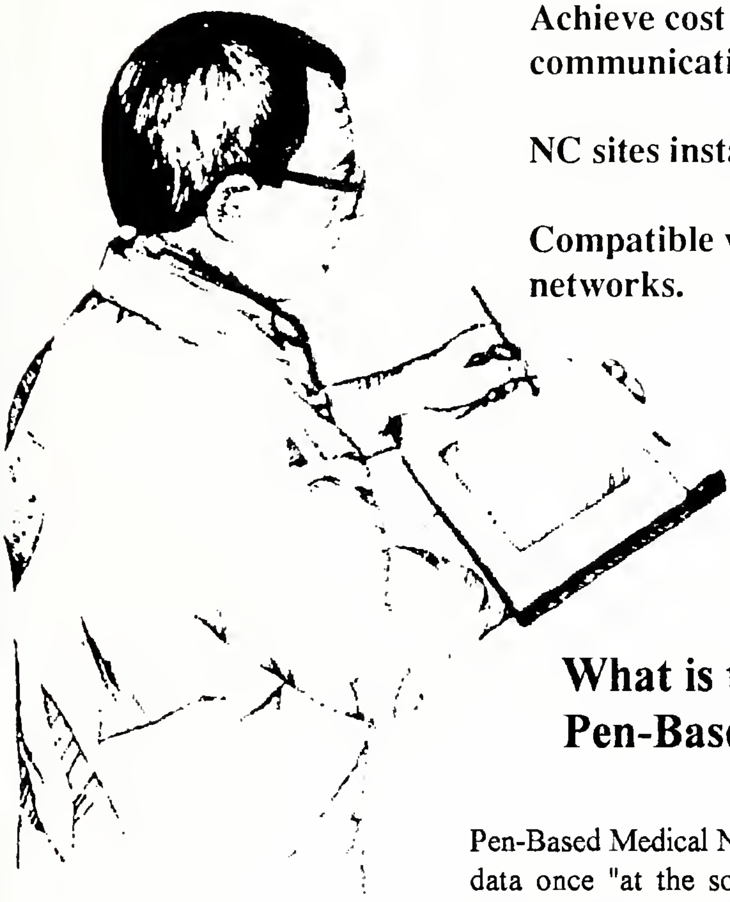

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It's the Cortex, Stupid

Edward V. Spudis, MD, MS

Many of the wrenching quandaries described in our *Journal* concern unusual patients that are mostly human, might still be human, or retain something we call personhood. We are better at managing the illnesses of our five billion associates but less and less confident about who or what is one of us. Our inability to create a satisfying definition of humanness leads us to cautiously consider that there may be human life in single cells, in motile sperm, in brain-dead patients. We say Egyptian mummies and 5,000-year-old icemen are "human." We install benevolent, gentle, explanatory concepts like "apallic" and "persistent vegetative state" because there is no ICDA number for a diagnosis of "not-human" or "no longer human."

The boundaries of humanness were less important years ago because quadriplegic, hydrocephalic, and anencephalic patients died quickly. Now, we nurture everything called homo sapiens and are ill at ease with heretical suggestions that our definition of what is human might include a "sapiens" requirement. To be fully human one must demonstrate self-awareness, a quality not found in oak trees. In addition to self-awareness, *Journal* readers will recognize a more subtle, rarely calibrated quality—a wonderment or curiosity about why we, of all the lumps in the universe, ruminate about why we are here. I can imagine that amoebae know the location of pseudopods A through E, a kind of self-awareness, but I suspect that amoebae and grasshoppers spend little time in study groups asking metaphysical questions.

Curiosity about ourselves has been a stimulus to scholars through the centuries. We now need to consider how to identify, even calibrate, this factor when defining humanness. Distinctions between fully human, formerly human, and not-yet-fully human keep any posters about Degrees of Humanness out of the nurses' stations. Our medical management of diseased humans varies, but our public posture about the patient's humanness never does.

Could We Create a Humanness Scale?

These recurring thoughts took me 30 seconds on my way to carry out an ethics consultation on an unconscious, elderly schoolteacher. Carl Sagan suggests that humanness begins, from a practical viewpoint, when brain waves are first recordable—at about 20 weeks of gestation. Is this all we require of our thick cortex? What about the similar waves in the huge brains of cows and elephants? Such waves are a notable milestone, but what about the poorly publicized transformation at 18 months to two years when the human infant becomes more intelligent than the typical adult of all other species? The brightest mature simians have qualities we smilingly proclaim to be "almost human."

Why have we not developed "humanness scales" to quantify our humanity like the Glasgow Coma Scale quantifies consciousness? We could start at zero with gametes; thereafter, obvious milestones to provide points on the scale might include the controversial pre-implantation embryo, the appearance of the dorsal streak in the embryo, Sagan's earliest brain wave activity, the learning spurt at 18 to 24 months. At the other end, we would subtract points for syndromes of damage, like brain death and the locked-in state. A typical American taxpayer might have five points.

A useful humanness scale would require the bold step of denying any points to absolutely anencephalic infants, to paleolithic bone fragments, or to science-fiction chimeras. Eventually, American citizens would realize that our medical delivery system, our patients and their relatives would be better off with a standard of medical management based on the scale of humanness—with a cut-off of care based on a percent humanness scale. Obviously, no taxonomy should be equated merely with IQ scores or intelligent 21st-century robots.

Ethicists and religious leaders will clamor for a coefficient to grade the ethereal quality called curiosity about self (or why did the universe need me?). Rather than a rigid scale for future ages, let us propose a practical beginning; ignore the possibility of xeno-transplantations for Parkinson's disease and omit any use of the word irreversible.

Dr. Spudis is a neurologist at Forsyth Memorial Hospital, Winston-Salem, and Clinical Professor Emeritus at Bowman Gray School of Medicine. He resides at 1215 Yorkshire Road, Winston-Salem 27106.

How "Labels" Constrain Behavior

The schoolteacher, admitted by her physician,* had a huge, right mid-hemisphere infarction. She had been deteriorating for five days, unable to swallow or respond to commands, but her respirations were normal. She withdrew her right hand and foot from painful stimuli. The family was divided over whether to continue intravenous fluids. Most were of the mind to stop: "She's had a good life!" The other half were, in my phrase, putrefactionists who wanted to prolong her decay. I would have given her a low score on the humanness scale—and she was 92!

After discussing the possible release of endorphins with dehydration, the family asked that IV fluids be withdrawn. The patient remained the same for 24 hours and then began to improve. She never spoke again but she followed commands with her right hand, made some customary facial expressions, and seemed to recognize family members. Presumably, the brain edema lessened as she became dehydrated. The scholarly family was puzzled and sober. They considered the possible meanings of "human non-person," "non-person human," and "vegetative state." Together we concluded that "person" was a word only for attorneys. We reviewed problems in making and interpreting Glasgow-type scales. We will face even greater problems if we measure the subtle thoughts of comatose patients electrically or with isotope scans.

She died abruptly one week later.

I think that having access to published humanness scales and comparisons across cultures will let us be more logical about our care of tragic patients like mine. I also anticipate admonitions about historical excesses. It will be fascinating to see how our seemingly unique tendency to inquire about ultimate roles—the wonderment factor—will be calibrated and blended into bedside management in the 21st century. ❑

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*Referred to me by Dr. Frank Crowell.

Counterpoint

J. Griffith Steel, MD, FAAN, Clinical Professor, Neurology, ECU School of Medicine, East Carolina Neurology, Greenville 27834

I have trouble locating the point of Dr. Spudis's op-ed piece. I suppose he is satirizing the many clinical evaluation scales (e.g. the Glasgow Coma Scale, the Glasgow Outcomes Scale, etc.) currently used in neurological care. Confronted with a 92-year-old stroke patient and a family amid a decision quandary, Dr. Spudis submits a "humanness scale" to aid in decision-making. When does life as a human being begin and end? Are there different degrees of human existence? How does the physician counsel families whose loved one is irreversibly devastated by a neurological catastrophe? How can we, the professionals, talk about persistent vegetative state (PVS), irreversible coma, apallic state, or coma vigale to a distraught and often poorly educated family? Fortunately, medicine, not metaphysics, shows us the way.

Dr. Spudis's "humanness scale" is most likely born of frustration dealing with end-of-life decisions in the neurologically devastated patient. As a practicing neurologist, I frequently consult in these situations: post-arrest coma, intraoperative hypotension with cerebral hypoxia, drowning, bilateral strokes, encephalitis, end-state dementia, cerebral herniation due to intracranial mass lesions, and so forth. Continuation of care issues typically arise within the first few days in intensive care. As an alternative to an arguable "humanness scale," I offer these suggestions to my fellow physicians:

1. ***Know the diagnosis.*** Every coma patient and every family deserves thorough work-up, even if no treatable cause is expected. Get any consultation and do whatever tests are necessary to arrive at a sound diagnosis.
2. ***Know the natural history of the disorder.*** Much is known about the natural history of PVS. Recent publications from the Quality Standards Subcommittee of the American Academy of Neurology propose workable standards for the diagnosis and prognosis of brain death and PVS.[1-4] Armed with this information, the physician is in a better position to counsel the family.
3. ***Talk to the family***—not once, but repeatedly. Hold several family conferences.
4. ***Enlist the help of others.*** The intensive care unit nursing staff, hospital clergy, and hospital patient representative should attend.
5. ***Identify and focus on family decision-makers.*** Usually, there are one or two persons to whom the other members defer. Talk to these individuals privately and answer their questions.
6. ***Take your time.*** Let out-of-town family members arrive. Give the grieving process time. Do not rush to discontinue care. Resist overtures from your managed care supervisors or impatient house staff. Families equate haste with carelessness, or uncaring. A family's negative perceptions toward the doctors bog down the decision-making process.
7. ***Call in consultants***—your friendly neurologist, if necessary. Do so early, allowing the consultant to become acquainted with the family and to build trust.
8. ***Consult your hospital ethics committee***—particularly in intransigent cases.

Our medical knowledge of the causes and consequences of profound brain injury has greatly expanded in the past few years. I sympathize with Dr. Spudis, but his metaphysic is surely a poor guide to physician behavior at the bedside. ❑

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Will There Be Members of the North Carolina Medical Society in the Future?

W. Grimes Byerly, Jr., MD, FACS, and Deanna Godwin

"Light is the task when many share the toil"

—Homer, *Iliad*

> Dear Dr. Byerly:
>
> Thank you for your note regarding my membership in the North Carolina Medical Society. I have found that the AMA and NCMS have not backed [my specialty] appropriately on a national or state level. I feel that my dues would be better used serving other [specialty] organizations.
>
> Very truly,
>
> I. M. Nameless, MD

I ask the readers of the *Journal*, indeed every one of the 20,000 physicians within the boundaries of the Old North State to substitute *"surgeons," "family practitioners," "allergists,"* etc., ad infinitum, for *"my specialty"* in the above letter. It's easy to see that quickly and dramatically we would have no organized voice for medicine in North Carolina. In particular, I ask the 13,000 licensed physicians now actively practicing in our state to give heed. The Medical Society needs to grow. This report will focus on the "Rs" of the membership committee: Review, Recruiting, Retention, Rewards.

Review

Review forms the basis for why North Carolina's doctors should join and remain members of the Medical Society.

Suppose no organization in North Carolina today represented physicians. From our common experience and a knowledge of modern society, it is safe to say that within a few weeks or months such an organization would appear. We can envisage the scenario: physicians in a geographic area come together to discuss problems—professional discipline, referral patterns, problem cases, peer review, and the like—and associate for fellowship.

For such an association to function well and dependably, it would need an organization—leaders (with methods of choosing and succeeding), ground rules for functioning, money to meet the costs engendered, etc. Obviously one would have a "local medical society."

The next step would be the "joining" of one or more of these local societies of like-minded physicians (by union, amalgamation, or whatever) into a larger group that offered greater strength, influence, and the ability of doctors to profit from the experience and knowledge of their colleagues. And because we already have geographic and political boundaries for other purposes, and because these boundaries are commonly accepted, those groups of like-minded physicians will be or will become component county and state medical organizations.

The point of this pedantry is that it is part of the natural order of things for North Carolinians to have some kind of a medical society: *even if there were no such thing, it would surely and quickly be invented!* This is the premise under which physicians come together. If associations are limited to doctors who share interests in similar anatomical or physiological areas, then we get specialty and subspecialty societies, of which

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Dr. Byerly is a surgeon in Hickory and past Chair of the NCMS Membership Committee. Ms. Godwin is Assistant Director of Membership, NCMS, Raleigh.

there is already a plethora, each with its own, often times, divergent agenda.

This, then, is the thesis for why we have a state Medical Society: We need one organization to represent physicians as such—not as technicians applying the skills of the bonesetter or scalpel-wielder; not as traders hawking potions or counsel; not as one of the many and varied subdivisions and subsections of medicine; but as *doctors*, the central figures in and purveyors of health care to our society. A statewide physicians' organization can do more to directly influence the health status of the state than any of the 33 specialty associations presently organized in North Carolina. Socioeconomic, legislative, personnel, training, and basic health care issues apply similarly to all physicians in all specialties in a given geographic area.

One query is whether individuals need a large, inclusive, collective organization to represent their common needs and give them greater power to achieve. Ultimately, we do believe that the physicians of North Carolina need such an organization to speak for and to represent all of them, an organization to encompass all physicians in the same area regardless of the ways individual physicians provide health care services to the citizenry.

Such an organization could arise because of government mandate (everyone must belong because it is the law of the state) or because of a general physician mandate (everyone must join because it is the practitioners' demand—a union). In actuality, the present organizational form (in North Carolina and elsewhere) is that of a volunteer organization. This makes sense. It goes back to our history and emphasizes the sociological nature of humankind.

Recruiting

Because of the volunteer nature of the Medical Society, we must address the question of how to recruit members. At present eight programs make up our year-round effort:

Peer-to-Peer. This begins each November on the occasion of the annual meeting when our leadership changes and a new year begins. This program started six years ago and lasts for four months through the winter. It targets physicians who are not members of the state Society (although some belong to the AMA and most are members of county medical societies). These physicians may or may not have been billed for their annual dues, but by November none have paid. The program is designed so that recruiting is done by physicians from the same geographic area or practice specialty or both. On average, there is a pool of 2,500 eligible physicians (in 1992-1993, 145 were recruited and in 1993-1994, 69). At the next annual meeting, the Society recognizes leading recruiters with appropriate rewards.

Phonathon. This seven-year-old program is a two-day event that occurs in the spring (generally May). It is conducted by physician volunteers assisted by staff from Society headquarters. It is targeted at a variety of non-members, those who have resigned, have failed to renew membership or who belong only to a county society. The recruitment pool is usually 1,600-1,800 physicians. In 1992, 13 Phonathon volunteers recruited 297 physicians; in 1993, 12 recruited 255; in 1994, 14 recruited 202. This is a competitive function and prizes are awarded during and at the end of the event. The Society's costs are low and the number of new members generated, high. This as an extremely worthwhile event.

Young Physicians Recruitment. This peer-to-peer letter-writing campaign targets physicians aged 40 and younger, and takes place in the spring. A young physician member recruits another young physician to join. There are some 2,000 names and generally 10 to 30 join via this program. In 1993, the Medical Society of Virginia granted all physicians under 40 membership for three months. This immediately doubled the number of members in this category.

New Eligibles. This program begins in June or July each year. Approximately 60 members of the Society's Executive Council and Membership Committee send letters to all non-member physicians licensed by the State Board of Medical Examiners during the preceding 12 months. Letters to 500-1,000 physicians recruited 113 new members in 1994 at a cost of about $800.

Student Recruitment. Students at the state's four medical schools are solicited each August. In 1991, 21% (of about 1,800) medical students at the four schools were NCMS members. Last fall, after an intense recruiting effort—in part engendered by an emphasis on four-year membership (which results in savings to both the student and the Society)—garnered 1,004 student members, as compared to 688 in 1993. The Medical Society pays state and AMA dues for all first-year students.

Resident/Fellow Recruitment. In late June or July of each year, the president of the Society writes letters to physicians in training who are not members of the NCMS. This is usually carried out when they are entering new training programs. We offer these young physicians membership for one-half the regular dues. This campaign involves about 800-1,000 physicians of whom 40 to 50 join.

Female Physician Recruitment. This letter-writing endeavor (definitely non-sexist!) is carried out from October through December. Between 700-800 women physicians are contacted and about five to 10 recruited at a cost of approximately $500. No prizes are awarded, but participants are acknowledged in the *Bulletin*.

International Medical Graduates. International medical physician members of the Society solicit international medical graduates through a letter-writing technique. This five-year-old program contacts about 700-900 potential members at a cost of about $500 with minimal success (one to five new members per year).

Additional efforts aimed at increasing members include:

Physician assistants. We are in the second year of a letter-writing program by the president of Society to these newly added potential members. About 145 physician assistants now belong to the Society, but the program is still too young to accurately evaluate.

Future directions. We are presently considering whether and how to recruit two further groups of physicians: military-federal physicians, and non-practicing physicians who are administrators, faculty, group managers, etc.

Group practices and retirees. The perceived duplication of benefits that occurs when multiple members of one group join the Society is a matter of concern. Since this does keep some physicians from joining it poses a threat to the survival of the North Carolina Medical Society, but there is no simple answer. On the other end of the spectrum, life membership in the Society has grown from 289 in 1969 to 918 in 1994. It now costs about $50 per year, excluding staff time, to maintain each life member. These experienced senior members could be well used in recruitment efforts like the Phonathon and the Peer-to-Peer Program.

Table 1. Key benefits of North Carolina Medical Society membership

Insurance products	Other products and services
Auto and homeowners	Auto leasing
Disability income	Collection service
ERISA bonds	Electronic claims processing
Group major medical	HCFA 1500 forms/envelopes
Life	Hotel savings club
Long-term care	Magazine subscription discounts
Major medical	Microfilming
Medicare supplement	*North Carolina Medical Journal* (includes *Roster*) and *Bulletin*
Personal umbrellas	Office equipment/systems
Workers' compensation	Practice management seminars
	Third-party relations

Retention

Over the years our statistics indicate that a physician who retains his or her membership with the Society for three years is likely to make a career commitment.

Once new members are enrolled, a great deal of effort is focused on them in the form of welcoming and encouragement letters, assistance and direction regarding component society and state Society meetings, activities and services, and multiple information sources, including the *Journal* and *Bulletin*.

An important part of retaining new members is to immediately make them welcome and get them involved, especially locally. Veteran members, especially from the retiree group, could serve as volunteer "NCMS colleagues" to shepherd new members and increase their participation, especially locally.

Rewards

A quick reminder of the benefits of membership is worthwhile. For assuredly, it is what physicians think they receive for their investment of money and time that motivates them both to join and to remain. Table I, above, lists a few of the *tangible* benefits of belonging to the state Medical Society. Even more important may be the *intangible* benefits: collegiality and cooperation in the professional endeavor to which we have devoted our lives, and a chance to make a real difference in health care in North Carolina.

Although Dean Witter's television ads measure success "one customer at a time," the Medical Society cannot tailor its programs and activities to each member. Our members must be willing to accept the maxim of 85/15: 85% of the time, you are on my side and I forgive the 15%. (As opposed to: You are against me 15% of the time, therefore I am not on your side!)

Conclusion

Organized Medicine is truly the only way doctors can speak with a continuing unified voice, given all the changes occurring in health care today. The more we physicians get involved in all levels of organized medicine, the better it will be for health care in the nation and for those who are the very reason for our existence—our patients. ❑

CME Calendar

October 13
40th Anniversary Celebration: Duke Center for the Study of Aging and Human Development
Place: Searle Center, Duke University
Info: 919/660-7500

October 20-22
Southeastern Dermatological Society Meeting
Place: Chapel Hill
Info: Office of CME, UNC, 919/962-2118 or 800/862-6264

October 21
The Inflammatory Myopathies: Diagnosis and Prospects for Treatment
Place: Hyatt Dulles, Herndon, VA
Credit: 4 hours Category I, AMA
Fee: $85
Info: Office of CME, University of Virginia School of Medicine, 804/924-8394 or 800/552-3723

Continued on page 522

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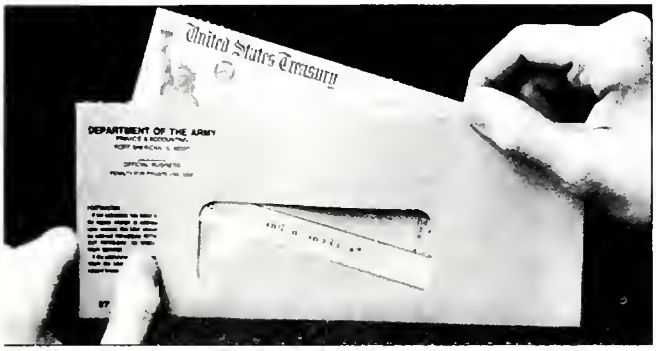

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Snapshot of an Illness

by Charles L. Reinhart

Just before intermission during a 1983 performance of the American Dance Festival at Duke University in Durham, a French dancer, performing for the first time in the United States, injured herself. At intermission the proverbial "Is there a doctor in the house?" echoed through the audience. Some 150 to 200 people stood up—they looked around at each other and then one of them cupped his hand to his mouth and bellowed back, "What specialty?" The thought crossed my mind: "If an emergency happens when I desperately need a doctor, I hope I am in the vicinity of Duke."

In late 1992 my thoughts became reality. After closing down the 1992 ADF season in Durham, I set off in August for ADF West at the University of Utah in Salt Lake City, and Stephanie Reinhart, my spouse and co-director, sped off to the ADF in Seoul, Korea. September found us both at ADF Moscow in Russia followed by work in Estonia, Sweden, and finally Poland.

Near the end of our trip to southern Poland's industrial Silesia, as we were walking toward the train that would take us back to Warsaw, I realized that I left a shoulder bag in a restaurant. I jogged my then 61-year-old and out-of-shape body back to the restaurant, picked up my bag, and began to run to the train. That afternoon, the sun was partially obscured by the familiar industrial coal smog. I was conscious of my heavy breathing and acutely aware of the organs occupying the space from my waist to my throat. "Oh my God, this isn't Duke, you don't want a heart attack here. There may be a 'No' if I yell 'Is there a doctor in the train station?' To hell with the train, there will be another."

About a week later, I finally got back to Durham. I was very tired. I had not had any exercise for several months, but I was itching to play tennis. On Saturday, October 3, I scheduled an afternoon tennis game with Dr. Mark Alperts, a Duke neurologist. I was looking forward to the game and to dinner that evening with Dr. Allen Roses and Dr. Anne Saunders of Duke.

I realized I was not in very good physical shape (that's why I wanted to play) and wondered how long I could or should go. Near the end of the second set I felt worse than I did running for the train in Silesia. I finally said to Mark, "Sorry, but I need to stop. I don't feel so well." At our dozen or so previous matches Mark had never brought his portable telephone, but this time he did and actually got a chance to use it. He called the ambulance and described where we were. I sat or laid down, whichever felt more comfortable at the moment, while Mark reassured me that I was going to be all right.

A Nightmarish Journey

Time is difficult to estimate in such circumstances (in fact it remained difficult until I was discharged from the hospital). I remember anxiously thinking that the ambulance should "be here by now." The expectation, reasonable or not, that the ambulance would arrive shortly after the telephone call, turned into agitated impatience. I answered Mark's "How are you doing" with, "Where's the ******* ambulance?" Mark called again and again repeating directions to our location. His voice was steady, calm and natural—quite the opposite of my own demeanor. Finally the ambulance arrived, and as I was lifted onto the stretcher, I asked Mark to tell Allen and Anne that I might not make it for dinner.

"Put this under your tongue, but don't swallow it."

"It's five minutes, here's another." My own thoughts reminded me of my children's comments from long ago. "Are we there yet?" "How long does it take?" "Why are we slowing down?"

The doors of the ambulance finally opened in front of the emergency room. "There's Allen Roses, what's he doing here? Is he bringing me my dinner?" Somebody started to ask questions, "Who will be responsible for you or make the decisions for you?" Bent over and unable to speak, I pointed to Allen, furious that they expected normal conversational answers. From that point I entered the floating world of vague glimpses, wisps of images, partial recollections, dreams, and a nightmare.

The nightmare is difficult to remember beyond the fact that it existed and included falling bodies—like the movie nightmares of my childhood. I couldn't remember ever

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Mr. Reinhart is President of the Board of Directors and Co-Director of the American Dance Festival, Box 90772, Duke University, Durham 27708-0772.

having experienced such a thing before, but it was exactly what I expected a nightmare to be. There was nothing vague about the images of a 1950s trip to Paris with present-day loved ones and others in extra bright, vivid, technicolor images of two women behind the desk; the entries to the lobby; the conversation with the desk clerks; the "Bonjours" while skipping down the street looking for Stephanie. All are cemented clearly in my memory, wrapped in an over-idealized setting bordering on the macabre.

The Seduction of Death

At first my fight with death lacked the usual elements of battle. I was lulled very gently into a cozy, warm, pleasurable feeling of slow descending; there was a seductive call to "Let go and all will be comforted." As I floated ever so gently downward, I heard an opposite force saying "No! No! Fight! You must fight this seduction of death or..." Till this day I remember the delicious comfort of dying....the total sense of ease.

I have scattered memories of being held against my will in the cement block cellar of a Miami Beach art deco hotel, of being suffocated by a covering over my nose and mouth, of being denied my inalienable rights as a patient, of crying out and then being soothed by Allen's familiar voice. (I learned later that I had pulled the hair of a nurse.)

Awareness came to me when I saw a nurse adjusting the IV running into my arm. "No, you can't walk to the john. Just wait a moment and I will get you a pan." The indignity of the bedpan brought the quick resignation that there could be no indignities at the moment, just a growing realization and rising joy that I am here.

I noticed sunlight streaming into the room. I was the only patient. Was that because I was too sick to be with others? No, all the rooms were singles. Was this the morning after? Was this the emergency room? No, I could see it wasn't on the ground floor and that's where emergency rooms are, right?

> *"Till this day I remember the delicious comfort of dying.... the total sense of ease."*

"Nurse, why the IV?" "Pneumonia? I came in with a heart attack!" Why is it so difficult for me to move in my bed? These sheets feel like waxed plastic. "What? I have just been moved here from the CCU? What is the CCU?"

"Critical Care Unit. The doctor will be here shortly to answer all of your questions." Oh, my God, there's Steph! She was in New York. I told Allen not to bother her. And some doctor. He looks very young.

"Can I sit up a little?" "Oh, look at my back; it's all broken out!" My eyes focused on the large brown area on my left thigh. What the hell could that be?

"Steph, when did you come?" "I've been here a week? Not possible!" This little white something they have dressed me in doesn't seem to cover all of my vital parts. Oh, the hell with it. I am conscious of my breathing; it feels heavy but the oxygen seems pure and reassuring. The apparatus doesn't cover my nose but sits there like a clip. A gossamer veil lifts, revealing a glimpse of memory—a momentary picture of the cement-block cell and me loudly protesting my right not to be suffocated; Allen walking in with his soothing words (or was it just the reassurance of a seeing a trusted friend?). The gossamer veil dropped quickly when I heard someone say, "You were very sick." How I loved hearing the verb "to be" in its past tense.

> *"The gossamer veil dropped quickly when I heard someone say, 'You were very sick.' How I loved hearing the verb 'to be' in its past tense."*

On the Mend

My joy increased when they first let me walk the corridor even though I dragged my oxygen stand and my left leg turned in at a right angle. I complained of feeling claustrophobic because I couldn't "breathe any fresh air." Lo and behold, there I was with Steph, a nurse, and a nurse's aid or volunteer, being wheeled outside the hospital to the street. Joy exploded at the gentle caress of breeze on my face. "Yes, I am alive." "Look at all the cars go by and people walking." "There is life outside!" It is good to remember that.

The nurses—steady, helpful, understanding, trustworthy, dependable—were there at just a push of a button. I was lucky, I only fell in love with one of them. Still, love or no love, I wanted to leave—get out—go home. It was negotiated, with me wanting "Now," and Steph being more reasonable. Dr. James Zidar, my cardiologist, agreed to my release after consulting with others and extracting from me promises of good behavior, including my entering the rehabilitation program at Duke's Center for Living.

The night before my release, a young doctor tried to find a vein in my wrist from which to take the blood which, he told me, was a prerequisite to being released. Unfortunately the veins in my wrist had decided enough was enough and were not cooperative. After 20 minutes of painful drilling, we both gave up, and I spent the night worrying about the consequences of my uncooperative veins. It was another practically sleepless night. Night had developed a special terror for me due to the difficulty of breathing and swallowing; I did most of my sleeping during the day. I could get some partial relief by sitting up in order to work hard on swallowing. I feared suffocating unless I could force a swallow.

Despite all, the excitement of being released had me up and dressed by first light. Another young doctor came in to draw blood—yes, it had to be from my wrist. First my right, then my left; after many attempts we finally struck oil. "After all that it better have the right oxidation or whatever." Time slowed until the answers came in. Finally, in the afternoon, with help of some close friends, we got out.

The Uplifting Joy of Life

During my "conscious week" in the hospital, a doctor came by and told me he had tended me in the CCU. I didn't ask him any questions then but I sure would like to now. Allen dropped by daily and answered what he could, but I wish I had a videotape of my unconscious week. Only later did I learn that I had been transfused with 10 units of blood. But my thoughts and questions were not morbid; quite the opposite. As I began to understand the extent of my complications and that I was alive, the utter joy of life flooded through me like a rocket launching. And still, every time that I speak about or think about it, a high voltage of life's joy lifts me up.

It's easy for the crust of life's old habits to set in again. After reaching the security and familiarity of my own bed, the high of life kept climbing. It took six months for me to begin to come down. The unsteady nocturnal journeys to the toilet, perhaps due to medications or some lack of foot coordination, reminded me how tenuous it all is. When, reaching for a towel, my wrist grazed the top of the shower door it brought back kinesthetic memories of unfulfilled drilling.

But my memory of October 1992, and of having seen other people in conditions like mine, rain the beauty of living upon me. Stephanie thinks they gave me a lobotomy in the hospital and that accounts for my new outlook. I can dispel the anxieties of today by remembering October 1992. My exercise bike, my new vegetarian diet, my learning to sleep till I wake up have, I feel, added greatly to my well-being and to my view of life. Perhaps Stephanie is right—in addition to all those things listed in my medical records, they did give me a lobotomy—one guaranteed to increase my lust and love of the moment. ☐

CME Calendar

continued from page 518

October 22
2nd Annual Atherosclerosis Update
Place: Asheville
Credit: 5.5 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

October 25-29
8th Duke Fall Ob/Gyn Symposium
Place: Grove Park Inn, Asheville
Credit: 14.5 Category 1, AMA (including 2.5 hours mammography), AAFP and ACOG pending
Info: Office of CME, DUMC, 919/684-6485 or 800/222-9984

October 26-28
Physician's Office Laboratory Symposium
Place: Winston-Salem
Info: Office of CME, BGSM, 910/716-4450

October 27-29
16th Mountain Medical Meeting
Place: Asheville
Credit: 12 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

October 29-November 1
Advances in Physiology and Pharmacology
Place: Asheville
Credit: 16 hours Category 1, AMA
Info: Office of CME, BGSM, 910/716-4450

November 3-4
Cranial Nerve Dysfunction
Place: Searle Center, Duke University, Durham
Credit: 16 hours Category 1, AMA
Info: Office of CME, DUMC, 800/222-9984 or 919/684-6485

November 3-4
Frank Lock Ob/Gyn Symposium
Place: Winston-Salem
Credit: 8.5 hours Category 1, AMA
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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"More Quotes from Big Ed's Calendar"

Only one fellow in 10,000 understands the current political scene and we run into him every day.
—*Kin Hubbard*

The radical invents views. When he has worn them out the conservative adopts them. —*Mark Twain*

Be a good listener. Your ears will never get you in trouble.
—*Frank Tyger*

You might as well fall flat on your face as lean over too far backwards. —*James Thurber*

Of all the forms of caution, caution in love is perhaps the most fatal. —*Bertrand Russell*

The structure of a play is always the story of how the birds come home to roost. —*Arthur Miller*

I have never met a person from whom I could not learn something, although it was usually something not to do.
—*Abraham Lincoln*

The computer is incredibly fast, accurate, and stupid. People are unbelievably slow, inaccurate, and brilliant. The marriage of the two is a force beyond calculation.
—*Leo Cherne*

People become house builders by building houses, harp players by playing the harp. We become just by doing just things. —*Aristotle*

**From* Briefcase, *a publication of the Oklahoma County Bar Association, contributed by John M. Perry, III.*

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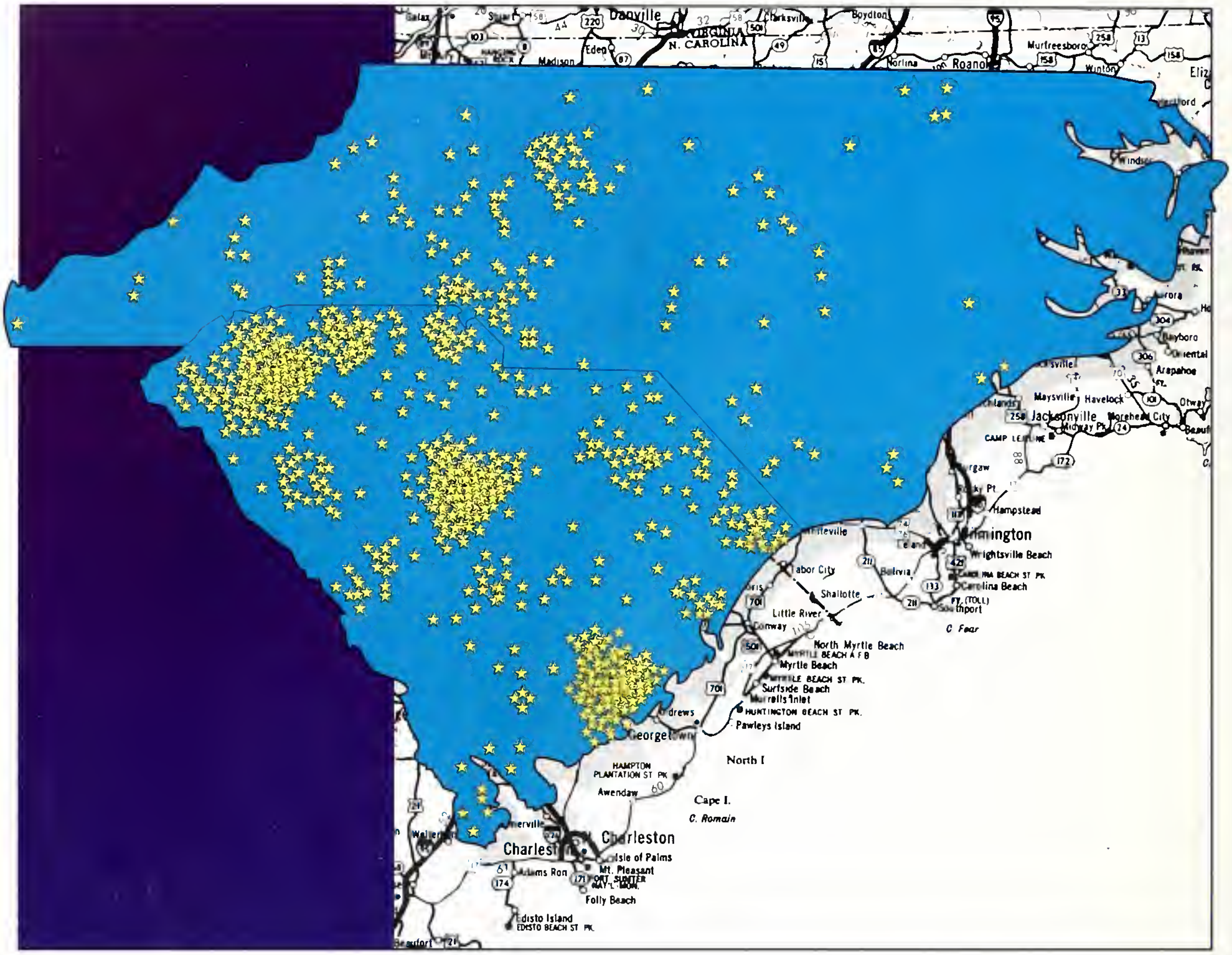

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November 1995
Volume 56
Number 11

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North Carolina Medical Journal

For Doctors and their Patients

SPECIAL ISSUE:

Medical History

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Where we're going—
Depend on
Where we've been

William B. Blythe, MD
Guest Editor

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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / November 1995, Volume 56, Number 11

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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

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Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format, and at least one hard copy of the text. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. *Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere.* Decisions to publish or not are made by the editors, advised by the peer reviewers.

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Medical History

The North Carolina Connection

William B. Blythe, MD

Some months ago, Editor Dr. Frank Neelon asked Dr. Bob Prichard and me to put together a special edition of the *Journal* dedicated to medical history. We enthusiastically agreed to do so. During the next several months, Dr. Prichard and I conferred by telephone about our plans for the issue; Bob had more and better ideas than I. Then came the telephone call from Managing Editor Jeanne Yohn telling me the tragic news of Bob's death. But she reassured me that some of the articles promised by Bob were already in hand and she had assurances that the remainder was on the way.

Sadly, Bob and I were not able to discuss the articles that we had or what else we might do with the special issue. Nevertheless, I am—and am certain that Bob would be—proud of the result of the deliberations that we did have. This issue of the *Journal* is an amazing, eclectic collection, but all the articles concern some distinct facet of medical history in North Carolina or have decided North Carolina connections. They cover a period of time extending backward from the immediate past to the 18th century. And the authors, too, are a fascinating group that encompasses a spectrum from aspiring medical students to retired distinguished professors.

Why a Special Issue on Medical History Anyway?

I suspect that for those who have to ask, there is no satisfactory answer. The famous British historian, Arthur Marwick, noted that "Henry Ford's 'History is bunk!' was actually a casual and unpremeditated aside: the significance of the remark lies in the fact that it is so often quoted with so much approval." I belong to another camp, one that enthusiastically embraces another cogent observation about the nature of history by Marwick[1]:

"The necessity for history has two aspects. History is *functional* in the sense of meeting the need which society has to know itself, and to understand its relationship with the past and with other societies and cultures. It is also *poetic* in the sense that there is inborn in almost every individual (leaving aside our spiritual dog-haters) a curiosity and sense of wonder about the past, an awareness as G. M. Trevelyan has put it, of 'the quasi-miraculous fact that once, on the earth…walked other men and women, as actual as we are today, thinking their own thoughts, swayed by their own passions, but now all gone, one generation vanishing after another, gone as utterly as we ourselves shall shortly be gone like ghosts at cockcrow.' There exists in the human imagination an "instinctive wish to break down the barriers of time and mortality and so to extend the limits of human consciousness beyond the span of a single life. The instinct is akin to that aroused in those autumnal days when there is wood smoke in the air and a strange disordered nostalgia pervades the mind; or to the emotions inspired by distant church bells on a calm Sunday morning."

I believe that, collectively, the articles in this issue of the *Journal* speak to the functional *and* the poetic aspects of medical history in our state. On behalf of Bob Prichard and myself, I extend my deepest thanks to all the authors.

Finally, dear readers, I hope that you will enjoy the issue and that there will be at least a whiff of wood smoke and a faintly audible peal of a distant church bell for even the least historically inclined among you. ❑

Dr. Blythe is Marion Covington Professor of Medicine, Department of Medicine, Division of Nephrology, UNC School of Medicine, Chapel Hill 27599.

Reference

1 Marwick, A. The Nature of History. New York: Delta Publishing Co., Inc., 1970.

Farewells to a Friend

Honoring Dr. Robert W. Prichard

Editor's note: The *Journal* lost a treasured friend, former Editor, and longtime Editorial Board member last January when Dr. Robert W. Prichard passed away at his home in Winston-Salem. Before his death, he served, along with Dr. William B. Blythe, as guest editor of this special issue and was instrumental in its planning and development. This issue fulfills their joint efforts. We reprint here an obituary and two editorials that capture the many facets of Dr. Prichard's colorful life and career.

Readers may make memorials to the R. W. Prichard History of Medicine Fund at the Bowman Gray School of Medicine, in care of the Office of Development and Alumni Affairs, Medical Center Boulevard, Winston-Salem, NC 27157.

Dr. Robert W. Prichard died January 29, 1995. He was 71. He had been chair of the Department of Pathology at Bowman Gray since 1973, and Director of Laboratories of the Medical Center since 1957. Dr. Prichard was widely known as a medical historian, as a national leader in the training of pathologists, and as a man who always had an appropriate story up his sleeve. For 11 years, he was editor of the *North Carolina Medical Journal.*

In 1959, Prichard, Dr. Thomas B. Clarkson, and several colleagues published "Atherosclerosis in Pigeons: its Spontaneous Occurrence and Resemblance to Human Atherosclerosis"—one of the first indications that animals, like people, could develop hardening of the arteries. Prichard found the susceptible pigeon, the White Carneau, on a farm in South Carolina, and used it in collaboration with Dr. Clarkson to demonstrate how nutrition—especially dietary fat and cholesterol—contribute to atherosclerosis. By the mid-1960s, they had also showed that monkeys, too, got atherosclerosis if they ate the high-fat, high-cholesterol diet favored by many Americans.

Prichard became one of the leaders of the Center for Research on Human Nutrition and Chronic Disease Prevention at Bowman Gray and the chair of several key committees. And because of his leadership, the Medical Center is the site of forensic autopsies for 17 counties.

Colleagues especially remember his compassion, kindness, wisdom, and lack of pretension. He is survived by his wife, Hellen Prichard, one daughter, Dr. Claudia Shepard of Winston-Salem; and one son, Robert W. Prichard, Jr., of Concord.

—Robert Conn, AB, MS, Science Writer, Bowman Gray School of Medicine

Memorial Address

Richard Janeway, MD

This piece was adapted from Dr. Janeway's memorial address given February 8, 1995, at Bowman Gray. Dr. Janeway is Executive Vice President for Health Affairs and former Dean at Bowman Gray.

The third chapter of Ecclesiastes begins with the familiar words "To everything there is a season, and a time to every purpose under the heaven. A time to be born, and a time to die; a time to plant, and a time to pluck up that which is planted." Less well known is the seventh chapter, which begins with the reminder that "A good name is better than precious ointment." It is hard to believe that Bob Prichard is gone from us, but I know that his good name, better than precious ointment, lives.

I miss Prich and his stimulating, brainy presence. He made major contributions to every facet of our mission at Bowman Gray. In the process he demonstrated kindness, wisdom, and lack of pretension. And, oh yes, he fed us with his humor.

I miss Prich and his stories. Wow!...such stories. Every day, it seemed, he had a new one. If a meeting turned too serious or possibly bordered on rancor, a Prichard story was the antidote. We will all miss his caring, his genuine love for teaching, his high esteem for his fellow human beings. In his last labor of love, as yet unrequited, Prich was the glue that held together the Center for Research on Human Nutrition and Chronic Disease Prevention at Bowman Gray. He chaired the committee that prepared six annual reports to Congress, refereeing contradictory comments from the faculty and producing seamless books that even a Congress member could understand. By God, he was organized. And he was precise!

I knew Prich for almost 32 years. I met him very early in my residency, and I came to rely on him and on his judgment. I turned to him often. I liked his style. For one thing, he answered his own phone. I would listen to the phone ring but once, and then be elated when I heard "Prichard," to which I would reply, "Janeway," long before I became Dean. Sitting in my office one day about 15 years ago, we talked about school finances. I said, "I don't know where the money goes." The next day, in subtle rebuke, Prich delivered a document that detailed every penny of his income and expense for a year. In red ink, of course. And of course, on scrap paper.

R Prichard M.D.

Bowman Gray School of Medicine (and all who read the *Journal*) will miss his phenomenal, almost unbelievable memory. Not only did he care about the history of his school, not only could he recite facts and name names, but he could put those facts and names in context, bringing instant understanding of a long-ago situation not only to neophytes, but to old-timers who, in the middle of action, chose to "disremember." Ask him a question about something he had published, about one of his more than 100 editorials in the *North Carolina Medical Journal*, and in seconds, he had moved from his desk to the correct volume and had the book open to the correct page. Those editorials, by the way, displayed his humor and whimsy for the world to see. The titles were so compelling that you just had to read on. Listen to a few:

"Are teeth just for chewing?"
"Going to hell with a cocktail pump"
"Some medical effects of tight pants"
"Contribute now—breed later"
"The non-cow cow"
"The schlockmeisters"
"Green apple two step"

The reward for his love of teaching was the look of insight on a student's face. And Prich was loved by our students. He was honored with the *Gray Matter* dedication, the Golden Apple Award, the Basic Science Teaching Award, the Student/Faculty Teaching Excellence Award. Few faculty get so many accolades from students. None was more deserving than Prich.

He came to Bowman Gray in 1951, fresh from a residency in pathology at the Deaconess in Boston and Presbyterian Hospital in Philadelphia. The residency program he developed gathered a superb national reputation. Many of his faculty members and residents will tell you that they came to the Medical Center just because of Bob Prichard. He became a fixture here, except for a two-year stint in Thailand. He loved to regale friends with tales of those two years in Bangkok and of wandering around in the bush, but rarely did he mention the major role he played in bringing modern medical education to Thailand. At home, on the national level, he was a member-at-large of the National Board of Medical Examiners. He was a driving force in the Association of Pathology Chairs. He filled many roles on the Accreditation Council on Graduate Medical Education, not only in his own specialty, but as chairman of the council of residency review committee chairs.

Prich made rounds in the clinical laboratories every day to be sure that the results they produced met the highest standards: his standards. He maintained his place on the firing line of his specialty, surgical pathology. Nobody was better at the top end of a microscope. He championed autopsies at a time when, nationally, they were becoming more and more rare. True to his words, he insisted, in writing, that one be performed on himself, his last salute to our profession, his idea of the perfect ending to his role as the consummate teacher.

And oh, his love of history! Pathology was his niche, but the history of medicine really lit his candle. He fired up countless medical students whose first exposure to "living" history came during his well-formulated lectures. Even more than that, his passing has created an irreplaceable role in our institutional memory. He was our institutional scribe, our amanuensis. If you wanted it written right, you had Prich write it. It will be a long time before we will be able to get things quite that right again.

I one-upped him only once, and then only for a short time. Knowing his love of history, I asked him, "What do the following have in common: 1066, 1588, 1898, 1918, and 1933?" He puzzled over this and finally admitted he couldn't put it together. Then I told him: "They are connecting rooms in the Warsaw Hilton!" One up! The next morning I got a typewritten list of 82 Polish jokes. On scrap paper, of course! I'm not sure I came out even.

Still, his greatest legacy may be to research. Bob Prichard and Tom Clarkson were the very foundation of Bowman Gray's development of major basic science research. Their pioneering work on hardening of the arteries in pigeons and monkeys led directly to our arteriosclerosis research program. Their work, from the late 1950s through the 1960s, extending into the 1990s, laid much of the foundation for national dietary guidelines about fat and cholesterol intake. Now, dozens of faculty and staff follow the path paved by Bob Prichard and Tom Clarkson.

Prich went to Wake Forest Baptist Church his last living Sunday morning. He saw Wake Forest beat Vanderbilt in basketball at the Winston-Salem Coliseum that afternoon. He died Sunday evening while on his exercise bike, probably reliving his bicycle trip through Europe with a grandson. Hellen told me that following Monday that he had got his 'druthers, because he 'druther have had it that way. Now that he is gone from our midst, we honor him most when we care about the place and purpose of medicine, and what it stands for. And when we remember that no situation is so serious that a little humor can't make it better. His good name, better than precious ointment, lives. ❑

A Personal Reflection

John H. Felts, MD

Dr. Felts is Professor Emeritus, Department of Internal Medicine, Section on Nephrology, Bowman Gray School of Medicine

It was my task to follow Bob Prichard in 1974 as editor of the *North Carolina Medical Journal.* In that position he had exercised his talent and his great respect for the precision and subtleness of our English language. He was blessed by an allegiance to the concrete and the succinct, and an antipathy to excess, both personally and editorially. He was devoted to the *Journal* and a rare support to me during my tenure as editor.

When speaking, he was equally lucid and economical, one of those rare individuals who with pen or tongue always made pronouns and their antecedents harmonize. Yet words can only offer hints about his essence. Bob was a ready speaker, a superb teacher, a good scientist, a lover of opera, a trout fisherman, an authority on the White Carneau pigeon; a busy man who always had time to tell a story or listen to one. In his office, amid books and journals, stood his ancient Underwood typewriter, upright as its owner, a treasured artifact on which he typed his answers to my questions and those of countless others. His replies were brief, cogent, kind, and amusing, borne on the backs of abandoned memos, committee reports, and such—his contribution to recycling. "Waste not, want not" applied to his use of time as well as words. And he also answered his own phone.

But the interest which he and I shared most broadly and most deeply was in medical history. With that in mind, I would like to offer these excerpts from the "Minutes of the Medical Society of South Carolina," written February 28, 1795, in Charleston. They apply equally to Bob.

"On Sunday Evening...a few hours illness [closed] the useful life of Doctor Peter Fayssoux, an Eminent Physician of this city. Nature had been bountiful to him in his gifts: he was a roboust form, And he possessed a healthy, vigorous constitution; his Memory was tenacious in a high degree, his judgement sound, his mind capacious, his dispositions were benevolent, his habits social; to these gifts were added an excellent education....

As a Man, he discharged the duties of life with unstained integrity, and unblemished honor.... His conduct was most exemplary as a Husband, Father,...and a friend: Those who knew him best, loved him most"[1]

Peter Fayssoux was indeed "an eminent physician," surgeon general, and pay master for the South Carolina Continental Line, medical officer with General Nathaniel Greene's army at Guilford Court House, founder and first president of the Medical Society of South Carolina.[2] Bob died almost 200 years to the day after Fayssoux. I hold his life equally celebrated. ❑

References

1 Medical Society of South Carolina. Minutes, 1789-1820, pp 21-22.
2 Waring JI. A History of Medicine in South Carolina, 1670-1825. Columbia, SC: South Carolina Medical Association, 1964, pp 212-214.

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Abraham Flexner and Medical Education in North Carolina

John H. Felts, MD

In 1910, 4,440 students graduated from 131 medical schools in the United States; 12 years later, 2,529 students graduated from 81 schools.[1] This striking decrease reflected reform in medical education because of accelerated application of scientific knowledge to diagnosis and therapeutics. These changes have often been attributed to the 1910 publication of the Carnegie Foundation's *Bulletin 4, Medical Education in the United States and Canada*, written by Abraham Flexner, but this report was really only the catalyst of a reaction long in the making,[1-6] one whose beginnings may be traced to 1847 when the American Medical Association (AMA) was founded to encourage professionalism in medicine and to counter alternative medical systems such as homeopathy.

Oliver Wendell Holmes as Exemplar

The reform movement is well-exemplified by the medical career of Oliver Wendell Holmes (1808-1894).[7,8] Holmes, a Harvard graduate, tried law but did not like it, and entered medical school. He studied in Paris from 1833-1835 under Pierre Louis, the founder of statistical medicine, then returned to receive his medical degree from Harvard in 1836. He tried practice but found little success or intellectual reward until he became professor of anatomy and physiology at Harvard Medical School. As one of seven faculty members, he served as dean from 1845 to 1853, introduced the discipline of microscopy, and became one of Boston's leading advocates of the use of the stethoscope. His *Medical Essays*, written during his long tenure at the medical school, are superb reviews of the progress of the day.[6] His classic work, *The Contagiousness of Puerperal Fever*, was published in 1843 and revised in 1855; it was roundly condemned in Philadelphia and ignored elsewhere in this country, but early appreciated in Europe.[8] The times were not yet propitious for reform.

When Holmes relinquished the chair of physiology in 1871, American medical science was no longer in its infancy.[7] His successor was Henry P. Bowditch, one of many American physicians (including William Henry Welch, the first dean of Johns Hopkins Medical School) to have studied in Germany, successor to France as the world leader in medicine.[5,9] Many worked in the Leipzig laboratory of Carl Ludwig, inventor of the kymograph, and returned home eager to establish basic scientific disciplines in the German model.[9] The movement led to the founding between 1887 and 1909 of today's leading basic medical scientific associations and of nine of the current major journals serving those disciplines.[5] The first medical school based on the German model, Johns Hopkins, opened in 1893 and its hospital soon after.

The Beginnings of Educational Reform

Aware that many physicians opposed scientific reform, in 1904 the AMA set up a Council of Medical Education with Arthur D. Bevan as chairman and N. P. Colwell as secretary.[2,4] To avoid conflicts among its members, it invited the Carnegie Foundation, where Welch chaired the executive committee, to investigate medical education of the US and Canada.[3] The Foundation chose Abraham Flexner to direct the survey. He was joined by Colwell who would proceed "cautiously and tactfully" so that Flexner could investigate with little interference and "tell that truth with utmost frankness" about each medical school he inspected.[4]

Because Flexner was not a physician, his qualifications were later challenged, particularly by the faculties of schools he found seriously wanting. But the Foundation had chosen wisely. The sixth of nine children of Jewish immigrant parents who had settled in Louisville, Kentucky, Flexner in many ways embodied the fulfillment of the American dream. His father had

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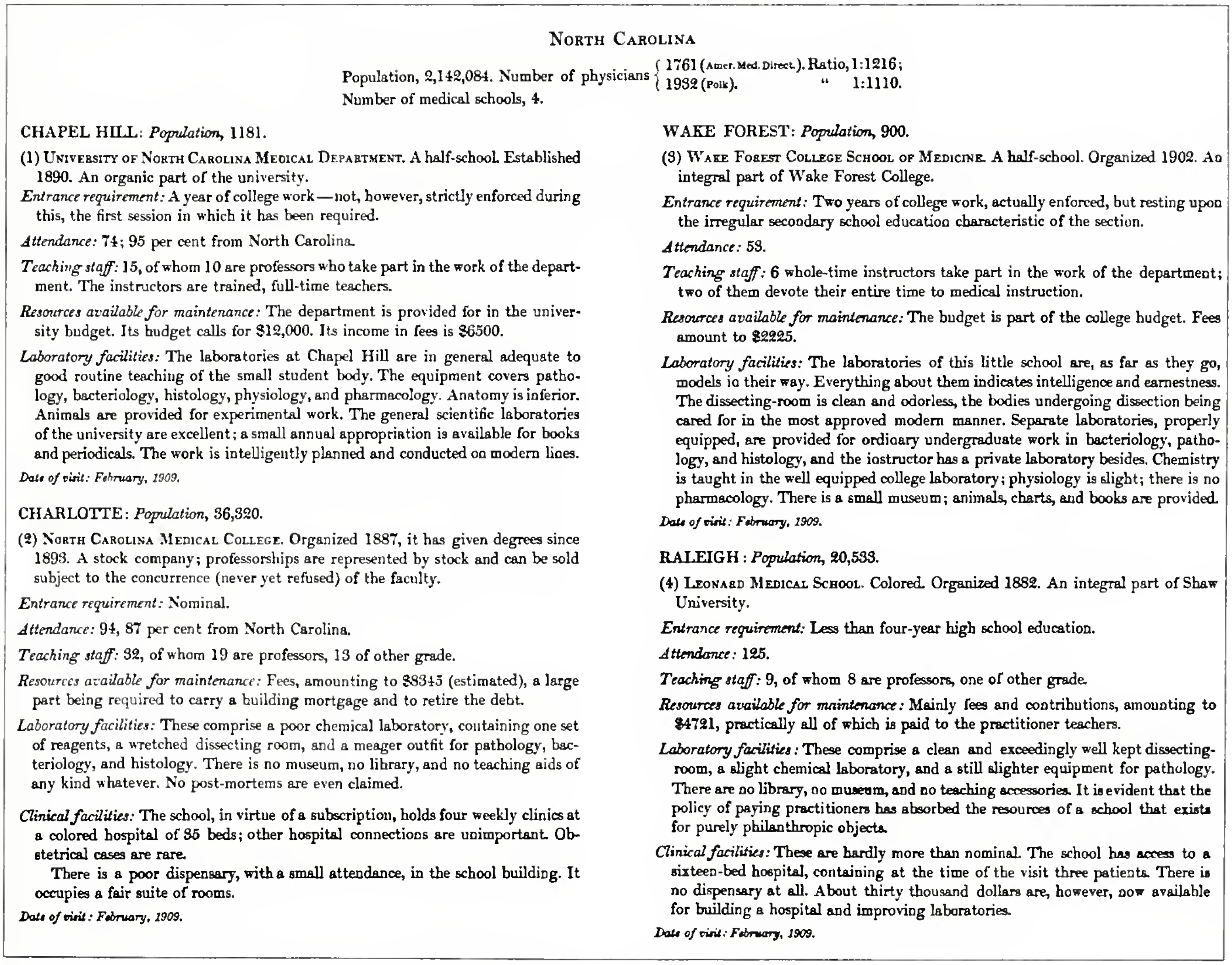
immigrated from Bohemia and progressed from peddler with pack on his back to wholesale merchant while bringing the rest of his family to this country. Flexner's parents were pious, industrious, ambitious, and self-reliant. Their children, although less religious, retained their parent's virtues, particularly their industriousness. When his father died in 1882, Abraham went to work, but managed to earn an undergraduate degree at Johns Hopkins University in 1886. He then established a private school in Louisville in 1890 and gained a reputation as an excellent teacher, enthusiastic and good humored, but impatient with the shiftless. After 15 years he left to pursue graduate studies at Harvard in psychology and philosophy. From 1906-1908 he studied the organization and administration of education in Europe, primarily in Germany. On his return, Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, invited him to conduct the study of American medical education proposed by the AMA.[4] Pritchett wanted someone who had never set foot inside a medical school, but who was experienced in the classroom and in education. Perhaps Pritchett and Welch, as well as Flexner, should have been targets of later polemicists.

Flexner began work in December 1908, and between January 1909 and April 1910, inspected every medical school in the US and Canada, often accompanied by Colwell. Before starting, he visited the Johns Hopkins Medical School, talking at length with Welch and many of the school's department chairmen.[3,4] Welch's role in what has been called "The Heroic Age of American Medicine" was even more critical then Flexner's, although neither could have succeeded alone.[5]

Flexner Comes to North Carolina

In February 1909, Flexner and Colwell inspected North Carolina medical schools: the two-year schools at Wake Forest and the University of North Carolina in Chapel Hill; the Leonard Medical School for "colored," and the clinical department of the university's school, both in Raleigh; and the North Carolina Medical College in Charlotte (Figure 1, below, and Table 1, next page).[3] The "half-schools" at Wake Forest and Chapel Hill



NORTH CAROLINA

Population, 2,142,084. Number of physicians { 1761 (Amer. Med. Direct.). Ratio, 1:1216; 1932 (Polk). " 1:1110.
Number of medical schools, 4.

CHAPEL HILL: *Population*, 1181.

(1) UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT. A half-school. Established 1890. An organic part of the university.

Entrance requirement: A year of college work—not, however, strictly enforced during this, the first session in which it has been required.

Attendance: 74; 95 per cent from North Carolina.

Teaching staff: 15, of whom 10 are professors who take part in the work of the department. The instructors are trained, full-time teachers.

Resources available for maintenance: The department is provided for in the university budget. Its budget calls for $12,000. Its income in fees is $6500.

Laboratory facilities: The laboratories at Chapel Hill are in general adequate to good routine teaching of the small student body. The equipment covers pathology, bacteriology, histology, physiology, and pharmacology. Anatomy is inferior. Animals are provided for experimental work. The general scientific laboratories of the university are excellent; a small annual appropriation is available for books and periodicals. The work is intelligently planned and conducted on modern lines.

Date of visit: February, 1909.

CHARLOTTE: *Population*, 36,320.

(2) NORTH CAROLINA MEDICAL COLLEGE. Organized 1887, it has given degrees since 1893. A stock company; professorships are represented by stock and can be sold subject to the concurrence (never yet refused) of the faculty.

Entrance requirement: Nominal.

Attendance: 94, 87 per cent from North Carolina.

Teaching staff: 32, of whom 19 are professors, 13 of other grade.

Resources available for maintenance: Fees, amounting to $8345 (estimated), a large part being required to carry a building mortgage and to retire the debt.

Laboratory facilities: These comprise a poor chemical laboratory, containing one set of reagents, a wretched dissecting room, and a meager outfit for pathology, bacteriology, and histology. There is no museum, no library, and no teaching aids of any kind whatever. No post-mortems are even claimed.

Clinical facilities: The school, in virtue of a subscription, holds four weekly clinics at a colored hospital of 35 beds; other hospital connections are unimportant. Obstetrical cases are rare.

There is a poor dispensary, with a small attendance, in the school building. It occupies a fair suite of rooms.

Date of visit: February, 1909.

WAKE FOREST: *Population*, 900.

(3) WAKE FOREST COLLEGE SCHOOL OF MEDICINE. A half-school. Organized 1902. An integral part of Wake Forest College.

Entrance requirement: Two years of college work, actually enforced, but resting upon the irregular secondary school education characteristic of the section.

Attendance: 53.

Teaching staff: 6 whole-time instructors take part in the work of the department; two of them devote their entire time to medical instruction.

Resources available for maintenance: The budget is part of the college budget. Fees amount to $2225.

Laboratory facilities: The laboratories of this little school are, as far as they go, models in their way. Everything about them indicates intelligence and earnestness. The dissecting-room is clean and odorless, the bodies undergoing dissection being cared for in the most approved modern manner. Separate laboratories, properly equipped, are provided for ordinary undergraduate work in bacteriology, pathology, and histology, and the instructor has a private laboratory besides. Chemistry is taught in the well equipped college laboratory; physiology is slight; there is no pharmacology. There is a small museum; animals, charts, and books are provided.

Date of visit: February, 1909.

RALEIGH: *Population*, 20,533.

(4) LEONARD MEDICAL SCHOOL. Colored. Organized 1882. An integral part of Shaw University.

Entrance requirement: Less than four-year high school education.

Attendance: 125.

Teaching staff: 9, of whom 8 are professors, one of other grade.

Resources available for maintenance: Mainly fees and contributions, amounting to $4721, practically all of which is paid to the practitioner teachers.

Laboratory facilities: These comprise a clean and exceedingly well kept dissecting-room, a slight chemical laboratory, and a still slighter equipment for pathology. There are no library, no museum, and no teaching accessories. It is evident that the policy of paying practitioners has absorbed the resources of a school that exists for purely philanthropic objects.

Clinical facilities: These are hardly more than nominal. The school has access to a sixteen-bed hospital, containing at the time of the visit three patients. There is no dispensary at all. About thirty thousand dollars are, however, now available for building a hospital and improving laboratories.

Date of visit: February, 1909.

Fig 1: An excerpt from Flexner's 1910 report of North Carolina's four medical schools.[3p279-82]

Table 1. Numerical data, North Carolina medical college, 1909[3p279-81]

	Faculty			Students		Fee income $	
College	Years	Prof.	Others	Total	NC	Total	Per student
UNC-Chapel Hill	2	10	5	74	70	6,500	87.84
Wake Forest College	2	6		53	NG*	2,225	41.98
Leonard Medical College	4	8	1	125	NG*	2,846	22.77
NC Medical College	4	19	13	94	82	8,345	88.77

(*not given)

were found to be doing acceptable work within the limits of their resources and both required candidates to have attended college before admission.[3] Whether Flexner actually visited the two-year schools himself has been questioned. Historians writing about the UNC and Wake Forest visits refer only to Colwell.[10,11] Presumably Flexner was talking to students and faculty while Colwell was handling administrative formalities.

Leonard Medical School, affiliated with Shaw University, and begun as a philanthropy by northern donors, had not used its income wisely and lacked adequate funds and teaching facilities.[3] Its first class had entered in 1881 and its first graduation was held in 1886. When it quietly closed in 1914, it had conferred 438 medical degrees.[12]

The clinical department in Raleigh was not mentioned in the *Bulletin*, but Flexner described his visit there in his autobiography.[4] The school had been authorized to offer clinical instruction by the University's Board of Trustees on January 16, 1902.[13] Dr. Hubert A. Royster, a Raleigh surgeon, was named dean and a faculty appointed. The University could not provide financial support for its fledgling, so the dean and his faculty were on their own. The first student entered in September 1902.[13] Flexner's description of his visit suggests that while Colwell played the diplomat, he was taking pictures.[4] As he wrote "the State University of North Carolina gave the first two years of its medical course at Chapel Hill, while the two clinical years were given at Raleigh. The medical-school building at Raleigh was filthy and absolutely without equipment. I employed a photographer who took photographs of every room in the building. When I returned to New York, Dr. Pritchett sent these photographs to Francis Preston Venable, President of the University, with a letter saying that they would be reproduced in facsimile in the forthcoming report. The President, who had probably never visited the medical school, was horrified. After hurried visits to Dr. Pritchett, he called the regents together, and the clinical years were abolished so it became unnecessary to mention them in the bulletin that was subsequently printed."[4] The University was the first in the nation to act in response to the Carnegie survey.[13]

The marginal status of the Raleigh department is revealed in Royster's annual reports to the Board of Trustees between 1904 and 1910.[13] The early reports are detailed, but after 1907 they are quite brief, mere formalities of a sentence or two. In 1907 he had asked for funds to erect an adequate building and to provide essential equipment, but his request was denied. Later reports suggest that the dean and faculty, many of whom were also struggling to maintain the Leonard facility, were becoming discouraged. Finally, the trustees decided, in February 1910, to close the Raleigh unit at the end of the session.[13] An unidentified board member's request for reconsideration failed, and Dr. Royster's name does not appear again in University documents until he was named professor emeritus of surgery when the four-year school opened in 1952.[10]

Protestation in Charlotte

The schools in Raleigh quietly closed their doors, but in Charlotte the reaction was one of resentment and denial. The North Carolina Medical College had begun in 1886 as a preparatory program for Davidson College students who planned to become physicians. In 1890, a two-year medical program was established and three years later, a three-year institution. By 1902, clinical instruction was offered at Presbyterian and Good Samaritan hospitals in Charlotte, and a fourth year was added in 1903. When the board of trustees at Davidson decided that supporting a medical college was not a part of their educational mission, the entire program was transferred to Charlotte and became a proprietary school.[12]

Such schools were particular targets of the Carnegie study. As Dr. Pritchett pointed out, the overproduction of ill-trained physicians by commercial schools, operating primarily for profit and weakly affiliated (if at all) with undergraduate colleges and universities, could hardly be expected to provide good education for medical students.[3] These schools simply had too few financial, laboratory, and clinical resources to justify their survival as effective teaching institutions.

Flexner severely criticized the Charlotte faculty as a private venture, money-making in spirit and object. Its teaching chairs were bought and sold by physicians who pocketed most of their students' fees and often wrote their own "essentials" and "quiz-compends" (course outlines and summary questions) as well. Such a financial arrangement could not provide adequate laboratory and bedside instruction or foster research. Flexner said that "any real standard whatsoever indeed would quickly dispose of the fairly wretched Charlotte establishment."[3]

The response of the Charlotte medical community can be found in the *Charlotte Medical Journal (CMJ)* for 1910-1911.[14] Its editor, E. C. Register, was professor of the practice of medicine at the school and a leader of the state's medical establishment. He spoke for the many who considered Flexner arrogant and ill-informed. The *CMJ* regularly published abstracts of articles from other publications; 18 concerned the Flexner report, 12 opposed and six saw some good in it (Table 2, below). Of course Flexner did not get all the facts; he was not a physician and could not appreciate good intentions or improvements in facilities. He failed to grasp the importance of spiritual values in medicine which would be vitiated by his recommended increase in laboratory instruction. The administrative and pedagogic prerogatives of medical schools would be usurped and the self-determination of each school seriously impaired, affecting medical education grievously. The cost of instruction would increase, thereby denying ambitious poor students the opportunity for self-improvement and removing the benefits of competition and motivation from such students.

Local chauvinism understandably influenced the arguments from Charlotte. Flexner's righteous certainty about his position caused legitimate concern that he was overstating his case, and there was worry that his brief visits had not allowed him and Colwell time to investigate adequately. Some of these arguments suggest that proprietary schools and their faculties failed to appreciate the explosion of scientific knowledge and of its increasingly rapid application to clinical medicine. Register felt that the AMA was seeking too much power and he may have feared that specialty journals published by the AMA would be to his economic disadvantage. There was occasional anti-Semitism as well as accusations that Flexner was stiff-necked and dictatorial.

The *CMJ* published two editorials, unsigned but presumably reflecting Register's views. The first said Flexner's condemnation of commercial schools was "so autocratic...unreasonable,...untrue...[that] his assertions would have little influence." It postulated that it would be a long time "before [his] ideas will appeal to profession or to our law making bodies." The second one, "Semitic Traits," was the *CMJ's* last word. Obviously Dr. Register was extremely upset by Flexner's report.

But Register's defense of the proprietary schools was of little avail. In 1914, the Charlotte Medical School merged with

Table 2. Excerpts from abstracts about the Flexner report, *Charlotte Medical Journal*, 1910

Publication	Comment
Hospital Bulletin	Flexner "not a medical man" but with "conceit of Herculean proportions." Report might make foundation liable for damages. Reforms aristocratic.
Lancet Clinic	Generally supportive.
American Medical Compound	Report "a piece of monumental impudence" unlikely to have any lasting good.
Medical Era	Flexner a "self-constituted censor of Missouri medical colleges and a layman." Mediocre schools needed for mediocre students. Report will have no influence.
Monthly Cyclopedia and *Medical Bulletin*	Flexner self-satisfied and destructive, but students should be better prepared, internships should be required, and state supervision of practice should be improved.
Medical Sentinel	Report unfair to "small and worthy schools."
Pacific Medical Journal	"Does the clinical diminish the spiritual side of our colleges?" "Join...in buying him (Flexner) a halo so that this light may not be hidden under a bushel."
Halifax Medical Journal	A "hasty" report and not pleasing.
Homeopathic Recorder	"The power to examine is the power to destroy."
New Orleans Medical Journal	Generally supportive but concerned about increasing cost of medical education.
Texas Medical Journal	Flexner "the preacher who prayed for rain and got hail."
Milwaukee Medical Journal	Generally favorable.
American Medicine	A real service but ignores recent progress and good intentions.
Therapeutic Gazette	Appreciative but considers Flexner too much the crusader.
Denver Medical Journal	Report flippant, "so full of errors." Carnegie assuming royal prerogatives. "Pure, unadulterated cussedness, raw malice, and percolated venom."

the Medical College of Virginia, a four-year school in Richmond, and transferred its students there. Degrees in medicine were confirmed by the Charlotte school until 1917 when the last transferee finished. A brief paragraph in the *CMJ* was the only reference to the end after Register's second editorial.

But resentment lingered long in Charlotte as attested by R. H. Lafferty, professor of radiology at the school. In 1946, more than three decades after Flexner's visit, his short, privately published memoir[15] reviewed the college's history and offered the old arguments about poor boys from rural areas suffering because representatives of the Rockefeller Foundation (sic) campaigned "to eliminate all the small medical schools." Lafferty said that the inspecting team had not informed the faculty that it was coming; consequently the visit came when the school was not in session and led to a "very fantastic and misleading" report. The school "did have" a microscope, and "stored" its cadavers in vats undiscovered by the visitors, and the laboratories were large and well-lighted.[15] Nevertheless, the faculty and the graduates of the school played prominent roles in North Carolina medicine; three graduates (Drs. John Q. Myers, John T. Burrus, and Oren Moore) and four faculty members served as presidents of the North Carolina Medical Society.

The Legacy of Reform

Flexner subsequently undertook a study of medical education in Great Britain, Germany, and France for the Carnegie Foundation. This work was particularly important because it expanded Flexner's thesis that full-time clinical teachers should be responsible for medical instruction at the bedside as well as in the basic sciences.[4] Flexner also returned later to Europe at the behest of John D. Rockefeller, Jr., chairman of the Bureau of Social Hygiene, to investigate prostitution there. The Bureau had been created in the wake of a 1910 special grand jury investigation of white slavery in New York City. The results of Flexner's survey, *Prostitution in Europe*, appeared in 1914. A brochure offered "restricted" sale of Flexner's work and its companion volume, *Prostitution in the United States* by D. C. Woolston, "to Adult Members of the Cultured Classes," a group not further defined.

Implicit in Flexner's criticism of medical education in North Carolina was the question of whether the state University should take the lead in establishing a sound four-year school, to exert "immense influence on its own community" as the University of Michigan had.[3] After World War I, UNC President Harry Woodburn Chase asked that such a four-year school be reconsidered, and in 1921 Governor Cameron Morrison appointed Chase, Dean I. H. Manning of the medical school, and Dr. R. H. Lewis to report on the feasibility of this. After study and consultation with Bevan, Flexner, and Welch, the committee recommended unanimously that a four-year medical school and a dental school be established at Chapel Hill. The trustees, in approving this report, thus rejected both state support for other medical schools and geographic separation of medical education from the University. The major obstacle was to get adequate financial support from the General Assembly, a daunting task in a poor southern state.[10,13]

At the December 20, 1922, meeting of the board of trustees, President Chase revealed that President William Preston Few of Trinity College had proposed a special committee to explore the University and Trinity "getting together" to jointly establish a four-year medical school. The Board appointed a committee comprised of R. A. Doughton, F. B. Hobgood, I. H. Manning, W. N. Everett, E. W. Pharr, H. B. Grier, and J. S. Carr, with Governor Morrison and President Chase ex-officio, to report within a month after conferring with Wake Forest and Davidson Colleges among others.[10,13]

At the January 25, 1923, board meeting, the committee recommended that Few's proposal be deferred for two years, but Josephus Daniels offered a substitute proposal, agreed to by Governor Morrison, to establish a four-year school at Chapel Hill. The 1923 General Assembly would be asked to authorize a bond issue in support, and the trustees empowered to do what was needed to achieve these goals. A Charlotte delegation instead urged the establishment of a four-year school there, with clinical instruction at Presbyterian hospital (valued at $500,000) and an annual allocation of $50,000 by Mecklenburg County. The Charlotte delegation of six included three members of the faculty of the old Charlotte medical school; Drs. Otho B. Ross, J. P. Monroe and I. W. Faison (Monroe and Faison were ex-presidents of the NC Medical Society), O. Max Gardner (who succeeded Morrison as Governor), C. W. Dowd, and Dr. C. W. Tillet. A special committee chaired by John J. Parker, and composed of R. O. Everett, W. N. Everett, H. P. Grier, E. W. Pharr, J. L Delaney, and Drs. W. deB MacMider, and I. H. Manning of the medical school faculty was directed to consider proposals from cities interested in being the site of a teaching hospital for clinical instruction.[13]

On February 9, 1923, from 11 a.m. to 6:45 p.m., the special committee considered proposals from Raleigh, Greensboro, Durham, Charlotte, and Chapel Hill. Each delegation had an hour for its presentation and the audience got so large that the meeting had to be moved to a larger room. The Raleigh delegation, including Hubert H. Royster, dean and professor of gynecology in the old clinical department, offered the site of the Blind Institute and affiliation with the state hygiene laboratory. Greensboro's delegation of four, offered 100 acres, $500,000 for buildings, and a potential $3 million to become available through the will of Moses Cone on the death of his widow. Durham, represented by John Sprunt Hill and Dr. W. H. Wannamaker of Trinity College, was probably the only real contender to Chapel Hill. Its offer of Watts Hospital, valued at $300,000 with an increase in the number of its charity beds, a new Lincoln hospital to be built at a cost of $15,000, city council support of $10,000 a year, and 28 acres of land adjacent to Watts for the medical school building was the result of careful planning and negotiation between Few and Hill.[16] Charlotte added a grant of $43,000 for equipment and supplies to its earlier proposal. Finally, Chapel Hill suggested that a 200-bed hospital be erected for expansion of the two-year school. Monies were to be provided by the General Assembly—an initial $300,000 for construction and $15,000 annually for support—but the site was not decided on and the matter became moot when the Appropriations Committee of the General Assembly denied the University's request. The matter was left with the board on record as favoring a four-year school at Chapel Hill.[10,13]

Full Medical Schools in NC

Failure of the Watts Hospital plan did not deter Few from seeking a four-year medical school in Durham.[16,17] As early as 1916, he had discussed with Simon Flexner, brother of Abraham, director of the Rockefeller Institute, and later biographer of William Henry Welch,[4] the matter of "at least a two-year school." Few also made contact with the General Education Board, which Abraham had joined in 1913, and in October 1921, wrote him that "the time is right for launching our medical school."[17]

Few was not idle at home. In 1922 John Sprunt Hill had conceived a plan for a four-year school to be governed by 16 trustees, the governor of the state, and 15 members to be appointed by him. The state would issue bonds for $2-$4 million, to be matched by contributions, possibly from the General Education Board. Watts Hospital, valued at $1.5 million would be the site of the school. Hill shortly abandoned this plan and Few resumed his maneuvering.[16] Wallace Buttrick, executive director of the General Education Board, was reported to have said that $6 million would be needed to establish a proper school in Durham, with half to be provided by the Board. On January 30, 1923, in the midst of his campaign for a combined school, Few wrote Flexner that time was wasting.[16] Later, the firmness of Buttrick's offer was questioned and the suggestion that Few had been disingenuous in his proposal, ultimately contributed to failure of the University trustees' plan for a four-year school in Chapel Hill.[10] In addition, North Carolina Baptists opposed the "improper association" of a Methodist institution, Trinity, and the State of North Carolina.[16]

Few did not have long to wait. On December 11, 1924, the Duke Endowment was created by the will of James B. Duke, and $4 million allocated for hospital construction and maintenance on the future Duke University campus. On January 20, 1927, Dr. Wilbert C. Davison was appointed dean after being recommended to Few by Welch. Ground was broken in August, the first class enrolled in October 1930, and the first graduated in 1932. After 16 years, North Carolina again had a four-year medical school—in Durham—without the financial support of the General Education Board, the Rockefeller Foundation, or the State of North Carolina.[18]

The next four-year school was located in Winston-Salem, a site that was not a contender in 1923. After the University declined funds from the estate of Bowman Gray to establish a clinical department in Winston-Salem, Wake Forest indicated its willingness to move its two-year school there, and the State Baptist Convention offered its hospital for clinical teaching. The school was named for Bowman Gray and began its four-year program in 1941.[11] The University finally moved its four-year school from the town of Wake Forest to Winston-Salem in 1952. In 1956, Greensboro became a center of clinical education when the Moses H. Cone Memorial Hospital became affiliated with the University.[10] Mrs. Cone had died in 1947, 24 years after the Greensboro delegation had suggested that her estate would be an early source for funds![13]

Flexner's Legacy Lives On

Flexner continued his involvement in medical education, facilitating the reconstruction and reformation of medical schools in North America until his retirement in 1928. At the invitation of the Rhodes Trust he presented three lectures on universities at Oxford in May of that year. He then further examined university structure and its role in Germany before rewriting and publishing his lectures in 1930.[19] Later that year he became the founding director of the Institute for Advanced Study in Princeton, New Jersey.[4] He retired in 1939 and died in 1959, honored and respected for his role in the rise of graduate education and research.

But what of Flexner as seen by his opponents? As Fox[20] has pointed out, he was intellectual and pragmatic, moved by noble vision, conflicted by human obstinacy. He was certainly ambitious, assertive, and upwardly mobile. When challenged he was rather aggressive and impatient. His view that teachers in medical schools should be full-time faculty was particularly strong—almost too forceful—antagonizing potential allies. Yet without such traits he could hardly have left his legacy. As he aged, he became more tactful, even relenting to a degree about the full-time plan. As a Jew he might have suffered from anti-Semitism and been saddened by the quotas set for admitting Jewish students to the very medical schools he so encouraged and respected.[21] He considered himself an assimilated Jew and had married a Protestant.[4] He was utterly undeterred in his reforming zeal by editorials like those in the *CMJ*. ❑

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Health Care Costs

Lessons from 1932 About a Chronic Crisis

Carl B. Lyle, Jr., MD

During the recent and intense dispute over health care costs, we have paid little attention to similar events that occurred in American medical and economic history almost 70 years ago.

The Committee on the Cost of Medical Care, then part of the US Department of Health, Education, and Welfare, published its 26-volume report and recommendations for reforming the American health care system (*Medical Care for the American People*) in October 1932.[1] Discontent over access to and the cost of medical care in the US had become so widespread that literature articles about the issue were more numerous between 1925-1930 than during the period 1985-1990.

Aware that something must be done, leaders in the social sciences, public health, and medicine met in Washington, DC, on April 1, 1926. A committee of five was appointed to solicit, by mail, the advice of 55 prominent citizens. The response was unanimously in favor of carrying out extensive research in various economic aspects of medical care in the US. As a result, 60 attendees of the AMA's annual meeting in May 1927, became the nucleus of the Committee on Costs of Medical Care. The Committee was chaired by Dr. Ray Lyman Wilbur, President Hoover's Secretary of the Interior, a former president of the American Medical Association and former dean of the Leland Stanford Medical School. An Executive Committee, after significant consideration, adopted a plan for research in 17 different areas of medical care. In addition, a Director of Studies was appointed. Funding was provided from contributions by private foundations.

The Medical Climate of the 1920s

In the mid-1920s, the US was spending $3.6 billion per year on health care. This represented 4% of the gross national product or $30 per capita per year. Even at that time, we were spending $5.8 billion each year on tobacco and toilet articles and recreation and $9.4 billion on automobiles and travel! The nation's total medical bill was then distributed as follows: 29.8% on physicians' care, 23.4% on hospitals, and 18.2% on medication. The remaining 28.6% was spent on miscellaneous services, including 3.4% on cult cures and 3.3% on public health. Of course, family incomes in the 1920s were considerably lower; 97% of families earned less than $10,000 a year, and 74.4%, less than $3,000. In 1929, the net income for physicians was $5,300 a year. The average per capita income in North Carolina was $399 per year.

The Committee on the Cost of Medical Care spent considerable time defining the status of medicine and medical care as it existed in the late 1920s. They assigned no blame for the chaotic system that existed at that time. No single person, or group of persons, had planned the then-present condition, nor could anyone be held responsible for it. The system was not the creation of practitioners alone, but had come about at the hands of practitioners, patients, hospital trustees, and superintendents; health officers, educators, philanthropists, industrial employees and employers; and government officials. In short, chaos had evolved and no one was at the helm.

The Committee pointed out that medicine depends on the social fabric into which it is woven. Social attitudes, habits of mind, cultural standards, economic activities, monetary returns, and the spending habits of people all affect the practice of medicine. They also pointed out that social conditions changed rapidly and, with them, the practice of medicine.

The Ideals of Medical Practice

Early on, the committee defined six essentials of a satisfactory medical program: 1) safeguarding the quality of medical service and personal relationships; 2) providing for people's real needs; 3) providing service on acceptable terms; 4) emphasizing preventive medicine; 5) selecting competent practitioners; and 6) paying practitioners and agencies adequately.

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The Committee studied experiments already under way in the 1920s. These included studies of the care of indigent patients by county medical societies (10 counties with medical societies in Iowa and a few other states had contracted with their local governments to provide medical care to the indigent). In Milwaukee County during summer and autumn 1932, individuals and groups of people were enrolled to pay regular monthly dues in return for designated professional services. The Committee studied cities in which groups of physicians shared professional personnel and equipment and underlined cost savings of such organizations. The Committee studied the 200 group practices then existing in the US and underlined the cost savings and increased accessibility to care such organizations provided. Roanoke Rapids, NC, was cited as a prime example of how industrialists could cooperate with their employees to develop a community medical service. The Committee also compared medical care in Western Europe to that in the US. In all, they weighed the pros and cons of more than 25 different systems of medical care.

Table 1, at right, shows recommendations the Committee made after its long study. In summary, they recommended the formation of group practices, the extension of public health services to all, universal health insurance, and state and local coordination of medical services. In regard to medical education, they felt that the training of physicians should emphasize health and prevention of disease, and that social aspects of medical practice be given greater attention; that dental students have a broader educational background, and that the education of pharmacists place more stress on responsibility and opportunities for public service. They also recommended improving the education of nurses, but also the use of less-thoroughly trained (but competent) nursing aides and attendants. They suggested that the training of nurse midwives be expanded and a more formal and systematic training provided for hospital and clinic administrators.

A Minority Report

There is no account of the interpersonal interactions or the dynamics of the debate that took place during the years of Committee meetings. However, 11 of the 48 members were unhappy enough that two minority reports were written, splitting the committee and depriving its report of the strength of unity. The first minority group (eight physicians and one PhD) thought that the high cost of medical care and mal-distribution of services reflected the general problems of social transition rather than developments peculiar to medicine and medical care. They suggested that these problems could not be solved by adopting the Committee's recommendations for the group practice of medicine or group purchase of medical care. The second minority report (written by two dentists) agreed with conclusions of

Table 1. Recommendations of the Committee on the Cost of Medical Care, 1932[1]

I. The Committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Some groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development of preservation of a personal relation between patient and physician.

II. The Committee recommends the extension of all basic public health services—whether provided by governmental or non-governmental agencies—so that they will be available to the entire population according to its needs. Primarily this extension requires increased financial support for official health departments and full-time trained health officers and members of their staffs whose tenure is dependent only upon professional and administrative competence.

III. The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both these methods. This is not meant to preclude the continuation of medical service provided on an individual fee basis for those who prefer the present method. Cash benefits, i.e., compensation for wage-loss due to illness, if and when provided, should be separate and distinct from medical services.

IV. The Committee recommends that the study, evaluation, and coordination of medical service be considered important functions for every state and local community, that agencies be formed to exercise these functions, and that the coordination of rural with urban services receive special attention.

V. The Committee recommends the following in the field of professional education: (a) That the training of physicians give increasing emphasis to the teaching of health and the prevention of disease; that more effective efforts be made to provide trained health officers; that the social aspects of medical practice be given greater attention; that specialties be restricted to those specially qualified; and that postgraduate educational opportunities be increased; (b) that dental students be given a broader educational background; (c) that pharmaceutical education place more stress on the pharmacist's responsibilities and opportunities for public service; (d) that nursing education be thoroughly remolded to provide well-educated and well-qualified registered nurses; (e) that less thoroughly trained but competent nursing aides and attendants be provided; (f) that adequate training for nurse-midwives be provided; and (g) that opportunities be offered for the systematic training of hospital and clinical administrators.

the first minority report, but also rejected the overall recommendations because no dental group plans had been recommended. Two Committee members individually expressed their regrets about signing the report because they felt it inadequately dealt with the fundamental economic questions that the Committee had been formed to study.

A Report Unheeded

When the report was made public, the AMA did not endorse it. *The New York Times*, in banner headlines, stated that the Committee had recommended socialized medicine (see McLelland article, page 544). Unfortunately, the mounting hard times of the Depression and dissension among the Committee members created concern and uncertainty in the mind of the public. The report on *Medical Care for the American People* had little impact on the subsequent development of our medical care system. Perhaps the next round of debates on the reform of our health care system can resuscitate the study, and it can serve a useful purpose. ❑

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Davis Hospital

A Manifestation of Dr. James Davis

John McLelland, III, MS IV

Davis Hospital, now Davis Community Hospital, stands atop a knoll just outside of Statesville, North Carolina. Its modern facility, opened March 24, 1984, is both tribute and recognition to the accomplishments of its founder, Dr. James Davis. Dr. Davis began the private hospital at its original location on West End Avenue in 1925. Davis Hospital, and also, the publicly funded Iredell Community Hospital, serve the health care needs of the residents of Iredell County and the surrounding area. It is on Dr. Davis's legacy that I want to focus.

James Davis was born in 1886 and grew up in the Wilkes County community of Goshen. From earliest accounts he had a burning desire to become a physician. As he declared to his younger brother John when they were still youngsters, "I've been studying it a good while, and now I'm sure of it. When I get grown John, I'm going to be a doctor and have a hospital and operate on a lot of folks, and get rich, too."[1p5] The young James Davis had great motivation to succeed, and this trait brought his later dreams to fruition.

Dr. Davis' connection with Statesville began early because his mother, Josie Wagner Davis, spent much of her time there. So much in fact, that both James and his brother John attended Mulberry Street School through the ninth grade.[1p8] James made excellent grades because, according to his brother, he "didn't do a thing but study."[1p20] Davis continued this habit in medical school, doing notably well in classwork at both the two-year University of North Carolina medical school (see articles by Felts, page 534, and Graham, page 562) and the University of Pennsylvania School of Medicine in Philadelphia. James Davis enrolled at Penn in 1908, but after one year his pursuit of the MD was interrupted because he had to return home after the death of his father to settle the estate.[1p29] "Lack of money was the reason Jim stayed out of school [and on the farm] those three years...,"[1p32] but Davis apparently kept in practice for his final year of school by performing first-aid services for the members of his community. He received his MD in spring 1913.

Following completion of his training at Robert Packer Hospital in Sayre, Pennsylvania, Dr. Davis accepted a position at Long's Hospital in Statesville. He never felt completely satisfied there because Dr. Long, the hospital's founder and chief of surgery, would not let Davis perform any complicated procedures.[2] Ironically, Dr. Davis would later be criticized for this same fault.[2]

A Vision of Health Care

Following a stint in the Army during World War I, Davis' philosophy of health care—one equally relevant to our time—became well-formed. Davis carried out a particularly intriguing and mysterious mission to Russia. As he wrote in a letter to Senator Arthur Watkins dated November 10, 1954, "I served my country in the First World War.... My duty there was as surgeon with a small group known as American Military Mission and also other duties which were assigned me verbally of which I cannot speak."[2] The details of the discussion are not known, but Davis did confer with such high-level officials as Lenin and Trotsky, and he returned with an adamant disdain for anything tinged with socialism. Nowhere was this fact more evident than in his staunch opposition to the Truman-sponsored House Bill No. 5940 some 30 years later. This bill sought to socialize medicine, and Davis and a number of other physicians spoke against it before the House of Representatives on October 12, 1949.[2] The bill was killed in committee before reaching the House floor.

The ideals of free enterprise and quality of health care—and the fact that his position at Long's Hospital had been filled while he was away—prompted Davis and his otolaryngologist friend, Dr. F. A. Carpenter, to open Carpenter-Davis Hospital on January 1, 1920. Following Carpenter's death, Davis began planning his boyhood dream, which was to create Davis Hospital. By the end of 1925, a 50-bed facility on West End Avenue in Statesville was a reality at a cost of $80,000.[2] The *Statesville Record and Landmark* for December 17, 1925, proclaimed that

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"Davis Hospital will move into its handsome new building...one of the most modern and completely-equipped hospitals in North Carolina." The facility contained the most advanced equipment of its day. The entire surgical department and many of the patient rooms had air conditioning. Radiographic facilities were state of the art.[1p99,2] Truly, the hospital proved Dr. James Davis' status as a visionary and his dedication to his community. Dr. Davis insisted that the hospital be available to those in need. Its emergency facility was open and staffed by a physician 24 hours per day—not unusual today, but a significant feature in the mid-1920s.

"Dr. Davis had a well-earned reputation as an astute businessman, and he used this in the management of the hospital's affairs."

No hospital could operate unstaffed, so Dr. Davis was joined on the original staff by Dr. V. K. Hart, otolaryngology; Dr. C. R. Toy, general staff; and Dr. S. A. Rhyne, radiologist.[2] Elizabeth Hill served as the head surgical nurse and superintendent of the nurses' training school. In-house nurse training through the Davis Hospital School of Nursing was another Dr. Davis dream made a reality. Its development stemmed from a fear that the new hospital would not be able to recruit enough qualified nurses to meet its rapidly increasing need.

Later, Dr. Davis was joined on the staff by Dr. Lloyd Shaw, an Iredell County native and graduate of the Medical College of Virginia who headed the Obstetrics and Gynecology Department, and Dr. Sam Holbrook, a graduate of Wake Forest and presently a lifetime trustee of the Bowman Gray/Baptist Hospital Medical Center, who became clinical pathologist in 1930. Staff from the Bowman Gray School of Medicine, headed at the time by Dr. Coy C. Carpenter, read difficult pathology slides for Davis, a service that continued well past Dr. Davis' death.[2] These men formed the nucleus of the developing medical staff at Davis Hospital, and Miss Hill headed the staff of nurse caregivers of the hospital. Later, Drs. E. R. Caldwell, George Ekgley, and Max Lewis—as well as other doctors—joined the staff to continue the work of the initial few.

A Doctor With Business Sense

By all accounts, Dr. Davis not only served as the hospital's chief surgeon, but also as its managing chief executive. He had a well-earned reputation as an astute businessman, and he used this in the management of the hospital's affairs. He began by dividing stock interests among all the employees. No single person dominated hospital stock holdings. Dr. Davis felt this was essential if he was to maintain the interest of employees in the success of the hospital.[1p110] Due to solid planning by its founder, Davis Hospital had obtained a substantial amount of property around its West End Avenue location, allowing for inexpensive housing of potential employees.[1p110] This forethought proved to be important when Davis Hospital expanded from a 50-bed to a 250-bed facility by 1963.[2] The addition of new surgical and radiographic wings, as well as the Women's Division (1962) marked the continuation of Dr. Davis' aspirations for the hospital.[2] Dr. Sam Holbrook commented, "We work a little harder, and we work for a little less...we cut out dead wood in our operating costs...we achieve a high degree of efficiency in all we do."[3] This spirit carried Davis Hospital through many financial vicissitudes with virtually none of the subsidies afforded to other small or medium-sized private hospitals. Ironically, Dr. Holbrook's comments of many years ago seem surprising modern in the managed care environment of today.

Only two private grants were made to Davis Hospital, $70,000 from the Ford Foundation for nurse housing and nursing classrooms, and $34,000 from the Reynolds Foundation.[2] Interestingly, Dr. Davis himself keenly felt the frustrations of operating even a successful private hospital in times that were thought to herald the advent of socialized medicine (See Lyle article, page 541) that would have spelled disaster for small, privately owned hospitals. In the report of a meeting of representatives of some 20 privately owned hospitals held in Asheville in May 1936, Dr. Davis wrote:

> "This country was founded by people who believed in freedom of the right kind. It is tragic that many of those things, for which those who established the United States of America fought and which are guaranteed by the Constitution, have been taken away under the guise of necessity or for various other reasons. Now that compulsory health insurance is being advocated in Washington and there may be a bill introduced in Congress with the idea of bringing this about, the doctor who is not familiar with this may be deceived with the arguments in favor of compulsory health insurance. Nothing could be more tragic than having a great medical profession ensnared and enslaved in the meshes of a public health care plan. Most doctors are overworked, have little or no leisure, give their service to the poor without charge, work holidays, Sundays and nights..."

" 'Nothing could be more tragic than having a great medical profession ensnared and enslaved in the meshes of a public health care plan.' "

> "Your doctor is doing something for somebody every day, and that's more than you can say about most men.... The hospitals of North Carolina, especially the private institutions, have not been receiving the consideration due them—nor have they had the support to which they are entitled."[4]

The success of Davis Hospital during the years following its inception resulted from the attitude of its employees and careful watchfulness of its founder. After many years of service to the Statesville/Iredell County community and the full realization of his visions, Dr. Davis died on May 31, 1955 at age 69. His legacy included an estimated 75,000 operations (truly a remarkable number), countless hours of community service, many instructional articles and publications; and perhaps most importantly, the realization of his childhood dream in "a fashion that exceeded my hopes."[1p215] Following Dr. Davis' death, Dr. Holbrook became managing executive of the hospital and its ownership was transferred to a non-profit collective. But the premises remained the same: quality of care, treatment for all, and management of cost.

New—and Hard—Times

The 1970s marked a period of relative stability for the hospital, but in the 1980s came a decade of "evolution and metamorphosis."[5] Davis Hospital began the era on a rough note. The hospital, which had so long prided itself on self-sufficiency, was bordering on financial collapse.[5] It was increasingly difficult for hospitals to continue unaided in an era of escalating costs and expensive equipment. Davis struggled to keep pace. In 1981, the problems of the hospital rapidly came to a head with four major occurrences: 1) it was offered for sale to the Hospital Corporation of American (HCA); 2) its debts reached $1.2 million and there were no cash assets; 3) the physicians who had made up the core of the hospital over its formative years formed a private practice group, the Statesville Medical Group; and 4) the Davis Hospital School of Nursing, which had existed since 1925, closed.[5] The last two occurrences were particularly disheartening, since physicians who had previously signed just with Davis were now free to work at competing hospitals (although many still maintained ties to Davis), and at a time when nursing shortages were documented across the US, the nursing staff could no longer draw recruits from the steady flow of nurses from the school. In the midst of this fray, the hospital hired Steven Blaine as chief administrator on November 18, 1981, and he served until 1994, when he accepted a similar position in Texas.

Blaine said of his tenure, "Discouragement, excitement, frustration, enthusiasm all presented themselves at one time or another."[5] The existing facility, having been in operation for nearly 60 years, could no longer meet the demands of a definitely changing world. Davis Hospital would have to move to a new location just outside of Statesville. The proposed location would decrease costs and the rural setting would allow plenty of room for future expansion. Construction of a new, $20 million, 150,000 square-foot, state-of-the-art facility began in April 1983.[5] In 1984, Davis Hospital, now known as Davis Community Hospital (HCA), entered a watershed year. The new hospital quickly began doing noteworthy things: the area's first "birthing suite" became a reality; the first CO_2 and YAG lasers were used; the first test-tube triplets born in North Carolina made an appearance (first at Davis Community Hospital and later on "Good Morning America").[5]

There were further advancements in 1985-1987, including the introduction of radial keratotomy, and the addition of an in-house computed tomographic unit; and the opening of the Delta Center, a 16-bed mental health center that still thrives today.[5] But despite these rapid changes, Davis Hospital still stood on shaky financial ground. HCA integrated itself with Healthtrust, its parent company, and redistributed the hospital stock. Skeptical analysts thought that the move was made to absorb the cost of new hospitals like Davis, which might not yet be making profits, but in any case, it is difficult to argue with the subsequent success. Davis Community Hospital has turned a profit each of the following years. By the end of the 1980s there were yet more firsts for the hospital: the first mobile lithotriptor in the area; the first laparoscopic cholecystectomy performed in North Carolina by Drs. Bruce Harris and Gary Robinson; a new outpatient surgery center; a fully equipped and staffed pathology lab; and plans for a substance-abuse treatment center.

The Continuing Legacy

Davis Community Hospital entered the 1990s with a new resolve based on the original ideals of Dr. Davis. Employees developed a vested interest in the hospital because they had become primary shareholders as well.[5] Now, Davis has added outpatient surgery and pain management clinics and a physical therapy/exercise facility, staffed by physical therapists and a full-time exercise physiologist, for rehabilitation and employee fitness.

The ideals of Davis Hospital's founding father live today in the hospital's mission. It will be interesting for us to see how Davis Hospital, and other community-based hospitals, meet the many changes in health care delivery. After 75 years of service, the hospital qualifies as one of Iredell County's most recognizable landmarks and a notable success story. It has secured its place in the history of the county by being a friend to the community it serves. In the words of Dr. Davis himself, "A friend is one who needs us and one whom we need."[6] ❑

Acknowledgment: The author thanks the late Dr. Robert W. Prichard for his guidance and encouragement.

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Dr. Edmund Burke Haywood and Civil War Medicine in Raleigh, North Carolina

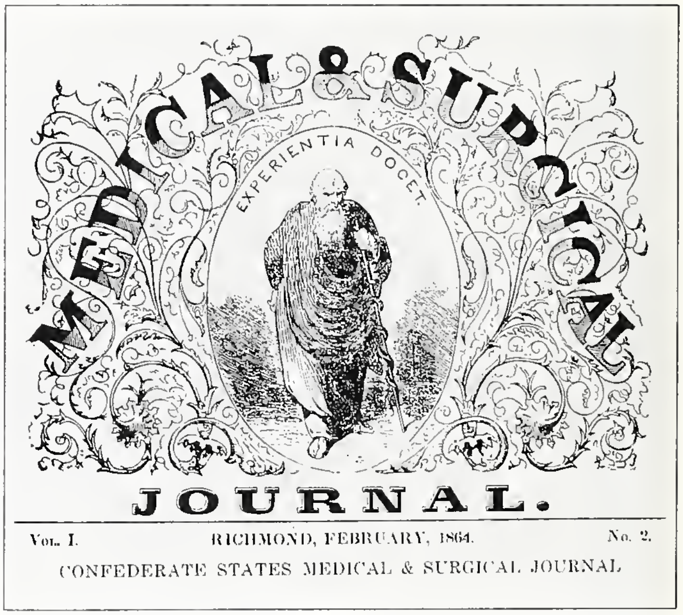
Charles E. Williams, MS III

Among the many problems facing the Confederacy as it entered the Civil War in spring 1861 was how to organize a system of health care delivery. This was, however, not at the forefront of Confederate leaders' minds since most assumed the war would be a short, relatively bloodless affair. When the conflict dragged on for four years and turned into the bloodiest war ever fought by Americans, a well-organized hospital system was needed to deal with the increasing numbers of ill and wounded soldiers. The Confederate hospitals located in Raleigh, North Carolina, serve as a good model for the way the Confederacy approached, and organized a response to, its medical care problems in the midst of war.

The Confederacy's need for a comprehensive health care system can be seen in the casualty and injury statistics of the war. All told, the South used more than 600,000 soldiers during the four-year conflict.[1p1] Of that number, 54,000 were killed outright and 200,000 died later of disease or battle wounds; the average Confederate soldier fell victim to wounds or disease six times during the war.[2] During 1861-1862, 1,219,251 cases of disease were reported to the Confederate Surgeon General from field and general hospitals east of the Mississippi; deaths from disease totaled 31,338.[1p2] These numbers offer only a glimpse of the challenges that Southern doctors and medical personnel faced throughout the war because, unfortunately, many Confederate medical records were lost when the Union Army invaded and burned Richmond in 1865.

Was antebellum medicine in North Carolina, and the South in general, up to the task that lay ahead of it? There is no straightforward answer, and no easy way to assess the medical profession of the prewar era. One author has written that "the Civil War was fought in the very last years of the medical middle ages,"[3] a claim that rings true when one considers that the revolutionary work of Pasteur and Lister lay still 25 years away. Though obviously primitive by contemporary standards, Southern medical thought, education, and practice were comparable to their counterparts in the North on the eve of the War.[1p20]

Overall, the average graduate of medical school of 1850s America was not very well prepared for professional practice. The quality of American medical education had been sinking throughout the first half of the century.[1p15] State examining boards were uneven in their enforcement of standards, and there was "a considerable amount of quackery everywhere in America."[1p15] Professional growth was particularly slow in the South; by 1864, the *Confederate States Medical and Surgical Journal* had published only its second issue (Figure 1, below). But by


MEDICAL & SURGICAL

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VOL. I. RICHMOND, FEBRUARY, 1864. No. 2.

CONFEDERATE STATES MEDICAL & SURGICAL JOURNAL

Fig 1: An example of the title page of the medical professional journal of the Confederacy.

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1861, medical societies had been established in all but three southern states.[3] Still, despite its shortcomings, the South had as many good practitioners to draw on for its military needs as the North, and they served according to the ability, knowledge, and training dictated by their era.

The Organization and Administration of Raleigh's Hospitals

Eight days after Jefferson Davis was inaugurated as President of the Confederate States of America, the Provisional Congress in Montgomery, Alabama, authorized the creation of the Medical Department of the Confederate Army and the post of Surgeon General of the Confederacy.[1p21] On July 30, 1861, Samuel Preston Moore (Figure 2, below) was appointed Surgeon General, a position he would hold throughout the war. Moore was an efficient man with a military background who was known for his sternness and for his ability to get things done. During the first two years of the war, Moore oversaw a somewhat chaotic medical system, unprepared for the large numbers of casualties and the medical needs they presented. The South's "short war" mentality may even have caused authorities to reject the need for an extensive hospital system.[4] In any case, homes, churches, and public buildings near battlefields had to be converted into hospitals to care for the wounded.

Fig 2: Dr. Samuel Preston Moore, Surgeon General of the Confederate Army.

In recognition of the growing problem of inadequate facilities and the grim realization that the war would last much longer than anyone had thought, on September 27, 1862, the Confederate Congress passed an act providing for a system of general hospitals, specified by number and the state in which they were located.[1p38] Designation as a "general hospital" meant that admission was not restricted to troops from particular units. Raleigh eventually became home to three of North Carolina's 13 general hospitals (#7, #8, and #13). (The other general hospitals in North Carolina were located at: Kittrell Springs #1; Wilson #2; Goldsboro, #3; Wilmington, #4 and #5; Fayetteville, #6; Salisbury, #9 and #10; Charlotte, #11; and Greensboro, #12.) Hospital #13 was also known as Pettigrew Hospital, after James Johnston Pettigrew, a well-known Confederate military leader killed in 1863.[5p463]

General Hospital #7 was actually established as the Fair Grounds Hospital in May, 1861, a year before the General Hospital Act was passed. The installation represented the state's first military hospital and was used to treat soldiers stationed at a camp of instruction located at the state fairgrounds in Raleigh, just off present day New Bern Avenue.[5p460-1] On August 1, 1862, the Confederate government took control of all medical installations and officially renamed the Confederate States Hospital at the Fair Grounds as General Hospital #7, Raleigh.

In June 1862, General Hospital #8, Raleigh, opened at the unoccupied Peace Building of Peace College. It was three stories high and had 300 beds in eight wards.[5p462] The only one of Raleigh's three general hospitals built expressly for the purpose, Pettigrew Hospital, did not open until summer 1864. It was based on the model championed by Surgeon General Moore, a one-story "pavilion" in which the patients were treated in a number of small huts rather than in large buildings. Each hut generally held 25-50 patients and the entire hospital consisted of 45-60 huts.[1p29-30] (This style of construction, the forerunner of the modern general hospital, was used by the British during the Crimean War.[4] The cornerstone of Confederate hospitals was based on the design of the famous Chimborazo in Richmond, Virginia. The most extensive military hospital of its day, it had over 8,000 beds.) Pettigrew had a capacity of about 350 beds,[6] a dispensary, bathhouse, laundry, guardhouse, and stable. It operated until the end of the war, even though its construction was never fully completed.

The Appointment of Surgeon Haywood

The pivotal figure behind Raleigh's hospitals was Edmund Burke Haywood (Figures 3 and 4, next page). Born in 1825 into one of Raleigh's prominent families, Haywood was educated at Raleigh Academy, the University of North Carolina at Chapel Hill (1843-1846), and received his medical degree in 1849 from the University of Pennsylvania.[7] Soon after North Carolina's secession, Haywood enlisted in the Raleigh Light Infantry and was elected the outfit's surgeon. In spring 1861, North Carolina's Surgeon General, Dr. Charles E. Johnson, put Haywood in charge of the Fair Grounds Hospital[8] where he served until the Pettigrew Hospital opened. At that time he was succeeded by Dr. James Wright Tracey, and Haywood took charge of the larger Pettigrew facility on June 18, 1864.[5p462] Haywood remained at the helm of Pettigrew until it closed when Union forces marched through Raleigh in 1865.

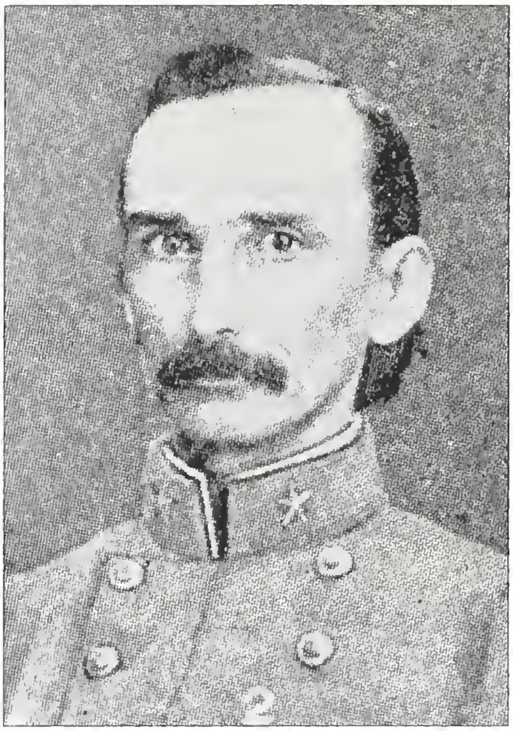

Fig 3 (left): Dr. Edmund Burke Haywood, director of Raleigh's Confederate hospitals. **Fig 4 (right):** Dr. Haywood later in life, after the war.

By all accounts, Haywood was an admirable administrator. He and his staff received only high compliments when visited by inspection teams in winter 1864 and spring 1865. He often served as acting medical director of North Carolina when the director was away from his post.[8] One doctor praised Haywood by writing to him, "I repeat it again, I had rather be an assistant under you than [head] surgeon of any regiment...."[9] Haywood's respect within the profession is further attested to by his service after the war as president of the board of directors of the State Insane Asylum from 1875 to 1889.

Despite Haywood's able leadership, the chain of command at Raleigh's general hospitals and at Confederate hospitals overall was not always as clear as it should have been. A military order of October 28, 1862, put the hospitals in the charge of local military commanders, but recommended that medical officers be given positions of leadership.[1p70] Problems obviously remained, however, because an order of March 12, 1863, placed the hospitals under the leadership of medical directors appointed specifically for the job. The surgeon in charge of the general hospital reported to the state medical director, who in turn reported to Surgeon General Moore.[1p71]

Raleigh's hospitals met the qualifications needed for general hospitals in many different ways. They were centrally located at some distance from the major battles of the war, had easy access to railroad transportation, and were in a city with a sizable population.[8] The hospitals were able to serve a large population of patients. Haywood wrote that the Fair Grounds Hospital was able to treat "more very sick men than...any other in this State, on account of its having been the receiving hospital for a large Camp of Instruction, which at one time contained between five and six thousand soldiers."[7] Records indicate that from May 20, 1861, to January 1, 1864, the Fair Grounds Hospital admitted 6,916 patients, of whom 5,894 returned to duty; 614 were furloughed; 69, transferred to other general hospitals; 28, discharged; 82, lost to desertion; and 229 died.[8] The mortality rate of under 4% is a remarkable statistic considering the serious nature of the diseases and injuries with which patients often presented.

Disease and Illness During the War

As was typical of Confederate hospitals, Haywood and his staff dealt with a variety of disease, trauma, and illness in their soldier-patients. One scholar has noted that the Civil War was the last major war in which more soldiers died from disease than from enemy bullets.[2] The general hospitals had to battle disease-festering conditions that began when the soldier entered camp. Hygiene and sanitation were not at the top of the average soldier's priority list, especially those from rural areas who often could not be persuaded even to use latrines. And when latrines were dug, they were often located near the source of drinking water, creating an ideal environment for fecal-oral transmission of diseases.[3] Other problems of camp sanitation included poor disposal of food remains and a general lack of personal hygiene among troops. The importance of cleanliness wasn't lost on the medical personnel; they knew the clear correlation between cleanliness and the occurrence of intestinal disease.[3] Even General Robert E. Lee despaired about soldiers attending to hygiene when he said, "[the soldiers] are worse than children, for the latter can be forced."[1p167]

By far the most prevalent medical conditions encountered among soldiers were diarrhea and dysentery (the distinction between the two was so nebulous that the terms became interchangeable over the course of the war). During the first two years of the war, dysentery or diarrhea account for 226,828 (27%) of the 848,555 cases of disease recorded on army field reports east of the Mississippi.[1p184-5] Physicians did not know about the bacterial and parasitic etiology of diseases, and most believed they were caused by bad food quality, poor cooking, impure water, fatigue, or exposure.[1p186] Mortality was not insignificant either; of nine deaths recorded at the Fair Grounds Hospital by Dr. Haywood during a three-month period of 1862, two were attributed to diarrhea and dysentery.[7]

Pneumonia was also common, afflicting 17% of the Confederate Army during winter 1862-1863. It was believed to be an inflammation and was treated with liquor and opium. Childhood communicable diseases showed up early in the war, as thousands of unexposed rural men were met with new immunologic challenges for the first time. Measles, smallpox, scarlet fever, typhoid fever, and tuberculosis were all described among soldiers at various junctures. When warm weather came, so did mosquitos, carrying malaria among troops. Quinine was the standard of treatment for malaria, although it was often hard to come by. In his medical records,[7] Dr. Haywood notes "success" in treating malaria by applying turpentine to the chest, a method circulated among other Confederate doctors. Finally, meningitis, bronchitis, rheumatism, scurvy, and sexually transmitted diseases all affected the South's fighting men.[1p183-213, 3p156-61]

Gunshot Wounds and Surgical Treatment

Gunshot wounds are an obvious problem in any war, but they presented special problems to Haywood and his contemporaries. First of all, prewar doctors had little experience treating gunshot wounds, certainly not the huge numbers encountered during and after a battle. Secondly, the ammunition of choice in the Civil War, the Minie ball, produced horrific wounds that defied simple treatment. The Minie ball was a conical bullet with a cupped base and one ring, shaped to flatten on impact and produce a large exit wound. It tended to shatter bone diffusely by imparting much of its kinetic energy to the victim.[10] And of course, there was an alarmingly high rate of infection among patients suffering gunshot wounds and amputations. The unfortunate result: 62% of all bullet wounds proved fatal.[2] Gunshots accounted for roughly 94% of battlefields wounds; the rest were caused by bayonets, or cannon and other artillery. Battle injuries were categorized as: severe flesh wounds, broken bones, and penetration of vital organs.[4] By anatomical site, 12% were head and neck wounds, 23% were chest wounds, and 65% were in the extremities. Chest and abdominal wounds were almost universally fatal.

Surgery was the treatment of choice for gunshot wounds. The modern impression of the Civil War surgeon as maniacal butcher has some basis in fact, although in most cases doctors operated in an attempt to save the patient's life. Patients who underwent amputation following a gunshot wound would probably die, those who did not, certainly would die. Of course, there must have been overzealous surgeons who performed more amputations than necessary. In fact, in August 1863, the Surgeon General ordered consultative boards at each general hospital to advise in all important surgical cases. No important operations, except emergencies, were to be done without the board's approval.[1p228] Despite the popular image of a wounded soldier biting the bullet while the surgeon sawed away, general anesthesia was the rule. Chloroform was the agent of choice, usually administered by sprinkling on a cloth, sponge, or handkerchief; the mortality rate associated with its use was very low.[2]

The pitfalls of surgery lay in the lack of sterility and sanitation. Disinfectants were used, but mostly as deodorants, since it was believed that bad air ("mala aria") led to infections (see Kraus article, page 580). If the limb could not be taken or the wound was on the torso, removal of the bullet was the cornerstone of treatment and an ungloved finger was used as a probe from patient to patient. Dirty linens were often used and reused to dress wounds.

It is not surprising that infection was rampant in the hospital wards, especially gangrene and empyema. Visible abscesses were commonly treated with incision and drainage, but doctors had no idea about how to treat gangrene since they had no knowledge of microorganisms or sepsis. Gangrene, a little understood entity, was characterized as a thick, gray mold accompanied by burning pain, loss of strength, and fever.[10] Haywood argued against the use of disinfectants for gangrene, feeling that they masked the body's warnings about the underlying problem.[8] Doctors still labored under the concept of "laudable pus," the idea that pus indicated the proper healing of a wound, and were amazed when a wound healed without suppuration. Given the lack of knowledge about infection or sterilization techniques, the overworked personnel, the prevalence of unsanitary conditions, as one author has remarked, "far from being surprised at their large mortalities, we should marvel that a majority of their operation cases recovered."[3]

Problems and Dilemmas of the General Hospitals

Despite his competent leadership and medical skill, Haywood faced a variety of problems during his tenure at Raleigh. As the war progressed, shortage of supplies was increasingly common. Firewood, clothing, medical supplies, food, and pharmaceuticals were constantly needed. The unavailability of drugs was a problem from the outset of the war because the South had few means of production and had to rely on smuggling from abroad, from the North, or even direct trade with the enemy.[1p134-43] Furthermore, there were very few skilled medical instrument makers in the South, and instruments had to be obtained via the same routes as medicines. Southern surgeons learned to improvise, too; horsehair was used for ligatures and sutures when silk was unavailable, which was quite often. Fortunately, the hair was often boiled to make it more pliant, serving the unintended purpose of sterilization.[11]

When food was available, Dr. Haywood found the prices exorbitant, especially at War's end. His ledgers show that the price he paid for chickens went from 45¢ in 1862 to $6 in 1865; for a dozen eggs, from 20¢ to $5; for a pound of butter, from 25¢ to $5.58; and for a bushel of sweet potatoes, from $1 to $33.80.[7] Food was an important consideration in a wartime hospital, where proper nutrition was the cornerstone of any therapy. Historian H. H. Cunningham writes, "rising prices and failure of the [government] to furnish adequate stores to the hospitals naturally had a detrimental effect upon the hospital diet."[1p87]

Maintaining an adequate staff for an increasingly overcrowded hospital was a constant challenge for Dr. Haywood. Many persons were needed to successfully run a general hospital the size of Pettigrew or Raleigh's other hospitals. The medical officer was responsible for receiving patients, transferring them to the proper wards, keeping records, and completing government paperwork. Nurses tended to patients' needs and helped doctors carry out treatment regimens. Stewards were in charge of hospital cleanliness, stores inventory, and distribution of rations. Matrons served the domestic chores involved with daily life of the hospital.[1p73-9] Haywood used a diverse group of people to fill jobs at his hospitals. A February 1864 list of 22 employees includes 16 slaves, two whites, and four "free Negroes" filling jobs such as matron, nurse, "washer," "scavenger," "cook," and "errand boy."[7] Congressional law provided each general hospital with two matrons, two assistant matrons, a ward master for each ward, and other nurses and cooks as needed.[1p73] At times, patients were pressed into service as gardeners and guards for the hospital.

Dr. Haywood also often faced problems from his government about the treatment and convalescence of his patients. As the conflict wore on, manpower became more and more scarce, and doctors were pushed to return men to the field as soon as possible. Doctors, on the other hand, had the responsibility of deciding who was unfit for further combat duty. There was also a selfish motive because physicians could use disabled men as hospital attendants, guards, or general workers. In a memo from Pettigrew Hospital dated August 24, 1864, Haywood described some of the ills that had disabled soldiers: "sarcocele of left testicle," "asthma," "general disability," "chronic bronchitis," "goiter," and "compound fracture."[7] Haywood had to send notice of each soldier he found unfit for service to the Medical Examining Board headquartered in Raleigh. One such report, dated October 10, 1863, reads:

"Private WC Barker, unassigned Conscript, [has] applied for a detail as Hospital Nurse. We...certify that we have carefully examined this soldier and find that he is suffering from uric acid calculus since the first of October 1856. And that in consequence thereof he is in our opinion unfit for field service...."[7]

The idea of working in the hospital, though certainly safer than a return to the battlefield, was not the goal of every soldier; many were assigned hospital duty instead of furloughs and discharges. This made them uncooperative at times, and not always motivated to perform their jobs with efficiency.[8]

Haywood and his colleagues had to deal with soldiers who were not always on their best behavior while patients. They were confronted with drunkenness, gambling, desertion, and soldiers who were absent without leave. Part of the problem was that the monotony of the hospital ward drove the soldiers to find diversions. Patients did find constructive breaks from the routine in crafts and toymaking, participating in religious services and revivals, and of course, reading mail from home.[1p90-3] The hospitals were efficient and professional in many ways, but they clearly had their share of problems, challenges, and troubles.

Conclusions

As General Sherman's march through the South advanced toward Raleigh, the hospitals faced the inevitable collapse of the cause they had worked so hard to support. The winter of 1864-1865 brought massive shortages of wood and clothes. As the war pushed on toward its conclusion, Haywood was advised by the state's medical office to transfer as many patients as possible to the western part of the state.[7] Still, the facilities became massively overcrowded as the Confederate armies were pushed closer and closer to the capital, and wounded arrived from battle sites closer and closer to the city. Homes and churches were again converted into hospitals,[8] evoking images from the War's beginning in Virginia, when the Confederacy was unable to cope with the onslaught of newly wounded.

On March 24, 1865, Haywood got orders to move as many patients as he possibly could from the hospital. On April 12, he received his final orders: remain at the hospital with the patients that were left. On May 11, Haywood's name was attached to an order from the US Provost Marshal Office stating that he had "given his solemn obligation not to take up arms against the Government of the United States until properly released from this obligation; and is permitted to return home...."[7] The War between the States was over.

Did Dr. Haywood and his Confederate colleagues succeed in the job they undertook at the beginning of the war: to care for the injuries, illnesses, and diseases of the Confederate Army? One could certainly point to many failures: the early disorganization of the system, the appallingly high surgical mortality, the chronic inability to provide a proper diet for convalescing soldiers, and the underqualified men who, by necessity, filled medical posts across the Confederacy at various time throughout the conflict. These shortcomings, however, were more a fault of the era in which doctors like Haywood practiced, rather than failures of the men themselves. Indeed, when the evidence is totaled, I conclude that the Raleigh Confederate hospitals, and Confederate health care in general, made a noble and praiseworthy attempt to serve their government during the bloodiest conflict ever fought on US soil. ❑

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My Romance with the Muse of [Medical] History

Marvin P. Rozear, MD

West of Ocracoke Inlet lies a mysterious island. Sand dunes face the ocean. Dense tall trees face Pamlico Sound. A church spire and cupola peek above the dark green forest. White specks suggest houses hidden in the woods, but there are no other signs of human activity. What is this spooky place? So forbidding, so inviting.

This is Portsmouth Island. Settled in the mid-1700s, Portsmouth Village was once the largest town on the North Carolina coast, with a booming economy. When Federals occupied the Outer Banks during the Civil War, most of the population left. Though many returned, the economy never recovered. The population dwindled, homes were abandoned, and in 1971, the last two residents moved to the mainland. The National Park Service took over the deteriorating property in 1976. Now about two dozen buildings remain in North Carolina's strangest ghost town.

Even stranger, this island once boasted its own hospital, the United States Marine Hospital at Portsmouth. All that is left of the first hospital in North Carolina, and the sixth US Marine Hospital, is a brick cistern. What activity, I asked myself, had occurred in this remote place, inches above sea level, a most inhospitable place, to justify the existence of a town, let alone a US Marine Hospital? The question would not go away.

Back to Portsmouth Island

US Marine Hospitals, now a part of the US Public Health Service, began as stepchildren of the US Treasury Department. To ensure financial support of the fledgling United States, the Customs Service installed collectors at each of a growing list of Ports of Entry. The collector sailed about in his speedy revenue cutter to inspect ships calling on his port, assess cargoes, and collect duties. In small ports like Portsmouth (which became a Port of Entry in 1806), the collector was the only government official for hundreds of miles. Every government activity in the area was his responsibility, including US Marine Hospitals. The collector was the hospital administrator, his boss was the Secretary of the Treasury.

The records of Port Ocracoke/Portsmouth, and of its US Marine Hospital, I learned, reside now in the National Archives, in Washington, DC. Almost nothing has been written about the hospital and its operation, so if I was going to answer my question, I had to go to Washington.

Early on a Friday morning, I started up I-85. I had contacted an archivist who would have the records pulled and waiting for me. I arrived in the city at noon, checked into the Holiday Inn, and walked over to the National Archives, an imposing mass of carved grey stone just off the Mall. Once inside this fort I gave them the name of my patroness, but still I was inspected and questioned. Finally, I found my archivist-friend. We joked about the reception. Not to worry, she said, they treat everyone that way. Then she took me down to the room where I would spend the next few...hours.

Lost in Time

The room was 1920s-style architecture, suppressed Art Deco, high-ceilinged, shelved and paneled, leather-smelling, and library-quiet. The arched casement windows showed only the grey Washington sky. Like a room in my old grammar school, a little cluttered. Worn, oak tables in rows ran the room's length, maybe as long as a basketball court, but nowhere near as wide. At a desk on an elevated false floor in the geographic center two keepers surveyed the dozen researchers busy at the tables, murmuring dark messages about some incipient espionage (or maybe planning lunch). Radiating warmth in this foreboding place, my patroness explained that she would be right back with the "trucks." I sat down, then stood up. Something about the place demanded I remain at attention, or at minimum, parade rest. I looked around, while the keepers watched my every move, every breath. I tried to breathe regularly, just to keep them guessing. After dozens of respirations (I counted, but didn't record the total), my friend came back with a "truck," disappeared, then reappeared with another.

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Each "truck" was a hip-high bookshelf on castors. On mine that day were the contents of *Record Group 90, Letters To and From Collectors of Small Ports, Years 18-something to 18-something else.* They comprised dozens of leather-bound volumes, containing mostly the actual letters: the paper, the ink (sometimes pencil) handwriting of officials at little ports like Portsmouth, Bath and Brunswick, Oswego, and hundreds more. Mostly they were grouped by port, sometimes in alphabetical order, somewhat indexed. I set out to look through it all. I began in the early 1800s.

> "...I found that if I...mumbled at just above a whisper, I could dictate what I read and yet avoid the wrathful glance of keepers and other inmates."

Armed with a dictaphone and about a dozen microcassettes, I found that if I flexed my neck, looked down and mumbled at just above a whisper, I could dictate what I read and yet avoid the wrathful glance of keepers and other inmates. Flipping pages, looking for letters to and from the port of my interest, I started out gingerly, hesitantly, but gradually accelerated. I found that nearly 200-year-old handwriting is amazingly like our own...but not quite. Antique terms popped up: "The U. States have determined that...." Of course, some of the handwriting was atrocious, almost as bad as some physicians. But it was all there. Why the people went to Portsmouth, how they struggled, how they lived and made a living, how they failed and suffered, how they survived a dozen hurricanes, how and why they built the hospital. It trickled out in front of me in thousands of letters, most in officialese, but sometimes with an off-guard comment that told of an argument, a personal tragedy, some little triumph. I dictated frantically, oblivious to the keepers, my other inmates, even the room. At some point, I became aware of a discomfort, an odd sensation, yet somehow familiar. What was it? I'd be damned, my bladder was full. What an unwelcome intrusion!

Relieved, I returned and plunged into the smallpox epidemic of 1836. The islanders wanted Doctor Dudley to move the patients off the island, but he refused. In a mob, they threatened to burn down his house. He gave in and moved them to Shell Castle. Three patients died, but couldn't be buried: the ground and sound were frozen.

The inlet shoaled up. The revenue boat needed new sails. A ship wrecked on the beach last night and they got the people off, but the villagers were pilfering the cargo. The economy thrived on "lightering," the transfer of cargo to and from large ocean-going vessels riding at anchor, to smaller coasters or "lighters," which could transport cargo through the shallow sounds and inland rivers. The small shipbuilding industry was prospering.

On it went through petition and repetition, suspicion and deposition, month in, year out. The names of my correspondents grew familiar, first by their handwriting and spelling quirks, then by their personalities and moods. New characters entered stage right and exited stage left. The hurricane of 1806 blew down many of the houses; two observers rowed into the sound the next day and counted "31 wrecks in a single view around us." Ships were cast away and never heard from again. The 1846 hurricane blasted open the Oregon and Hatteras inlets up the coast. Throughout, trade went on and the population grew; they built a huge hospital.

I came to know some of the children as they grew into the correspondence. The names are still common in Carteret, Hyde, and Beaufort counties: Wallace, Willis, Whitehurst, Blount, Howard, and Bonner. I communed with their ancestors.

Decades passed. War came. The correspondence dried up; just a few notes, mostly from Beaufort, then a couple more after the war. The Port of Entry moved to Beaufort. The inlet shoaled again; marine traffic used Hatteras and Oregon inlets. Portsmouth's economy dwindled and died. The letters stopped. The people left.

Transformed by History

Outside, the street was dark and I was disoriented. I had lived and toiled for years in a distant place, in another century, with people I grew to know. A heavy mist rolled in off the Potomac, droplets of water washed from fields soaked with blood of patriots, formed haloes around streetlights. Was that a revenue cutter with worn sails riding at anchor behind that parked cab? Rudely cast back into the 20th century, I wandered around the Mall. Back at the Holiday Inn I started to tell the desk clerk where I had been but refrained (he wouldn't understand).

> "That night I dreamed of smallpox-riddled corpses,...storm tides washing over the floor boards,...and 31 wrecks 'in a single view around us.'"

I had a beer and watched Peter Jennings narrate the latest footage from the Gulf War. That night I dreamed of smallpox-riddled corpses bloating on the frozen sound, storm tides washing over the floor boards, schooners and lighters cast away, seven feet of water in the swash channel and 31 wrecks "in a single view around us."

I have been to Portsmouth and walked in and among its abandoned buildings. The silence is powerful: Standing between ancient houses, by picket fences around cemeteries, on mowed lawns, you expect to hear something human. There is only the wind. But I will never be at Portsmouth again like I was that gray day in Washington. There, in that stale room with the keepers and the inmates, I lived at Portsmouth with the people. I'll never be the same. ❑

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FOR PATIENTS

NORTH CAROLINA MEDICAL SOCIETY

Health Watch

VOLUME 56 / NUMBER 11 / NOVEMBER 1995

You Can Stop Smoking

NC Doctors Offer Tips to Quit

by the Tobacco Control Subcommittee of the North Carolina Medical Society

Preparing to Quit

1. You must positively decide that you are going to quit and set aside a date for quitting.

2. Find at least one person who really wants you to be successful. Ask them to be your buddy to help you through the tough times and recognize your successes.

3. Identify why you smoke. Look at when, why and in what situations you light up. Understanding why you do something can help you change the behavior.

4. Identify why you want to quit. Write your reasons on a card and keep it where you usually keep your cigarettes.

5. Identify the times and places you usually smoke. Develop plans for what you can do instead of smoking at those times and places.

6. When you want a cigarette, wait a few minutes. Try to think of something to do instead of smoking; you might chew gum or drink a glass of water.

7. Schedule a teeth cleaning for a few days after you quit smoking.

8. The night before you quit, rid yourself, your house, your car and your office of all cigarettes, ashtrays, lighters and matches.

During the first week that you quit:

1. Begin an aerobic exercise program that you enjoy. Make sure your doctor approves.

2. Take slow deep breaths to relax. Along with exercise, this will be your most effective way to handle stress.

3. Carry a travel toothbrush with you and use it after every meal.

4. Make a list of things you'd like to buy for yourself or someone else. Estimate the cost in terms of packs of cigarettes and put the money aside to buy these presents.

5. Anticipate and plan. Think about tempting situations that may occur and plan how you will handle them without a cigarette.

6. Believe that you will succeed. There is life after cigarettes!

Source: *American Lung Association, National Cancer Institute, and American Cancer Society materials.*

Coping With Withdrawal Symptoms

"Signs of Recovery"

Listed below are symptoms of recovery that may occur a few days or weeks after quitting smoking, with suggestions on how to handle them. REMEMBER, they are normal and temporary.

You May Feel:	Why It May Happen	What To Do About It
Irritable, nervous, anxious, grumpy	No more nicotine, losing the crutch of cigarettes	Take it easy. Avoid stressful situations. Warn those around you. Get enough rest. Do whatever is relaxing for you. Exercise.
Unable to concentrate, less efficient, impaired speech, lack of coordination, feeling spaced out or in a fog	Withdrawal from carbon monoxide (poisonous gas) and nicotine	Breathe deeply. Take a walk. Be careful using equipment or driving. Take time off, if necessary. Don't expect too much of yourself – especially the first 3 days.
Lightheaded, dizzy, feeling overstimulated	More oxygen in blood, less carbon monoxide	Sit down. Relax. Consider it a high.
Sleepy, weak, no energy	No more nicotine for stimulation	Wake up with deep breathing and exercise. Get extra sleep and take naps. Enjoy feeling relaxed. Take it easy.
Insomnia or other sleep disturbances	Change in daily routine, body may need less sleep	Use more energy during the day. Relax before bed with deep muscle relaxation and a warm bath. Enjoy the extra hours you aren't sleeping.
Hungry	Nicotine artificially suppresses appetite.	Recognize these feelings may not be due to hunger. Don't eat more (except for low-calorie snacks like carrot sticks). Exercise. Drink water.
Increased coughing	Excess mucus and tar in the lungs being cleared out	Be glad your lungs are getting clean.
Constipated	Decreased intestinal activity	Eat fiber or roughage foods like fresh fruits and vegetables, whole grains, and bran.
Headache	Better circulation sends more blood to the brain	Lie down, relax.
Irritated or itchy scalp, hands and/or feet	Better blood circulation to your extremities	Massage the area.
Tremors, shaky	Nicotine withdrawal	Sit down. Tense and relax muscles.
Sweaty	Body's way of flushing out nicotine	Take more showers!
Increased need to urinate	Body's way of getting rid of nicotine or from drinking more fluids	Go with it. Be glad your body is flushing out this poison.
Mouth sores, bad taste, sore gums or tongue, dry tongue	May be due to chemicals in cigarettes needed to counteract nicotine	Use mouthwash or oral antiseptics.
Strong emotions	Nicotine no longer deadens your feelings	Accept feelings as natural. To keep them in control, pause, breathe deep, and relax.
Dreams of smoking		Be glad you don't really smoke!

Adapted from: **For You and Your Family - A Guide for Perinatal Trainers and Providers.**
California Department of Health Services, Tobacco Control Section, 1991.

Recommended self-help materials

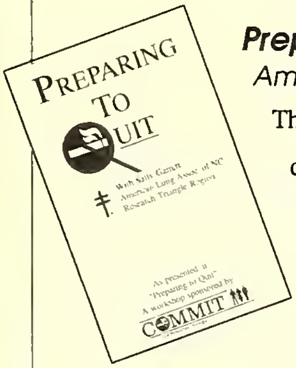
Clearing the Air: How to Quit Smoking and Quit for Keeps

US Department of Health and Human Services, National Institutes of Health, Public Health Service, National Institutes of Health Publication No. 92-1647

This pamphlet provides a thorough overview of the important steps to take in quitting. It includes a snack calorie chart, withdrawal symptoms, and tips for avoiding relapse after quitting.

9" x 4" pamphlet, two-color, 24 pages

To order free copies call (800) 4-CANCER. Expect to wait 4-6 weeks for bulk orders. Samples can be sent immediately upon request.



Preparing to Quit

American Lung Association

This 30-minute tape includes step-by-step instructions to guide the smoker through preparation, quit day, and maintenance. It emphasizes the importance of being physically, psychologically, and emotionally prepared to quit smoking and has logical, valuable suggestions for stopping smoking with the least amount of discomfort.

Cost: Individual tapes - $4 Ten or more - $3.50

To order call (919) 834-8235 or (800) 633-1987

Freedom from Smoking Self-Help Manual

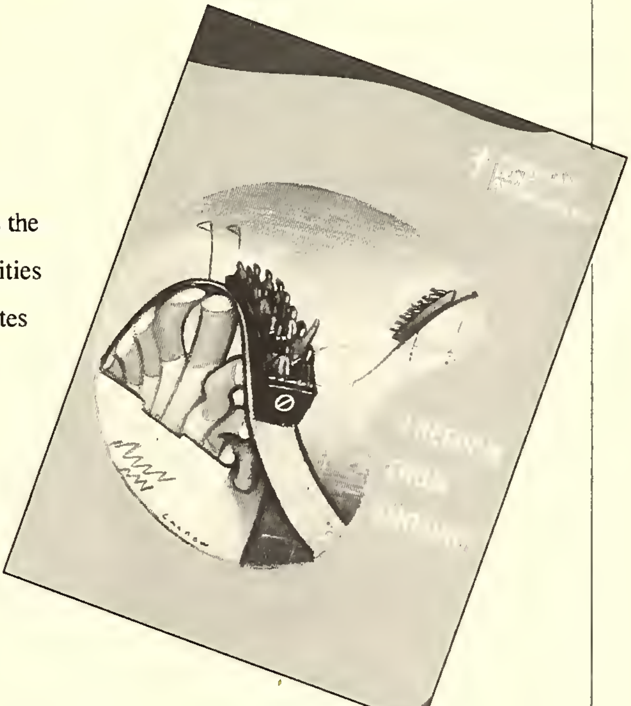
American Lung Association

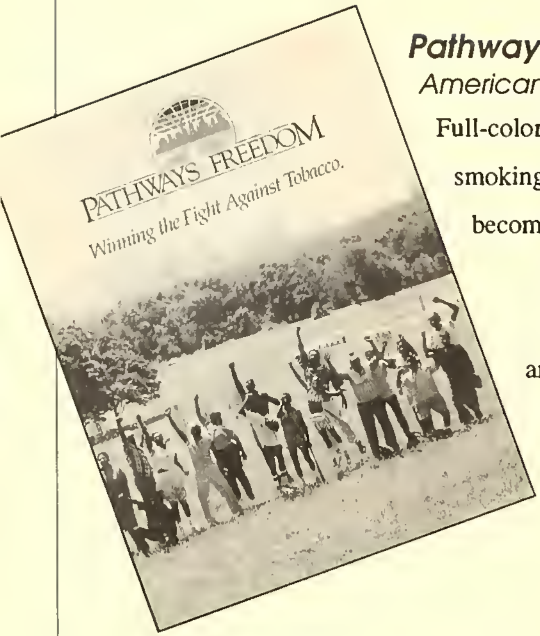
This comprehensive, step-by-step guide to quitting smoking allows the smoker to move at his or her own pace. Included are specific activities designed to help understand the habit and develop positive substitutes for cigarettes. A maintenance segment concentrates on staying smoke-free. The manual includes an audiotape on relaxation.

8 1/2" x 11," full-color, glossy, 46 pages

Cost: $12 (includes manual and tape)

To order call (919) 834-8235 or (800) 633-1987




PATHWAYS FREEDOM
Winning the Fight Against Tobacco.

Pathways to Freedom

American Cancer Society

Full-color, glossy cessation guide for blacks that includes sections on how big the smoking problem is for blacks, how to quit and stay quit, and how communities can become more organized and powerful in addressing tobacco use issues.

8 1/2" x 11," full-color, glossy, 35 pages

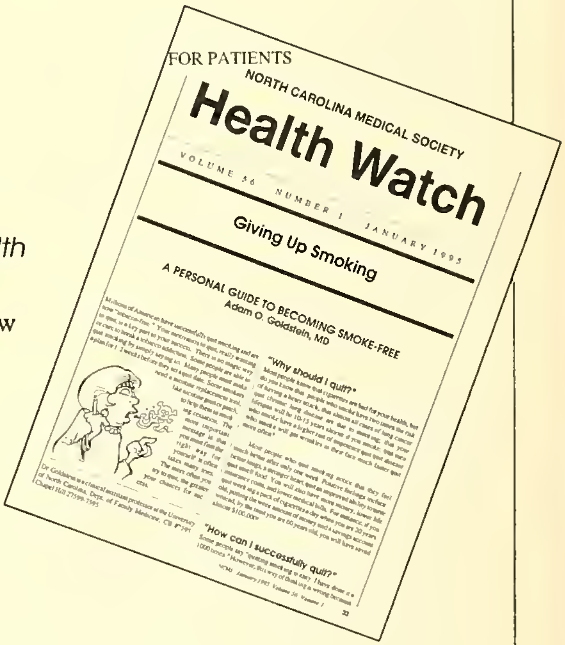
To order this free publication call your local American Cancer Society Unit and mention that this is newly reprinted (code number 2044).

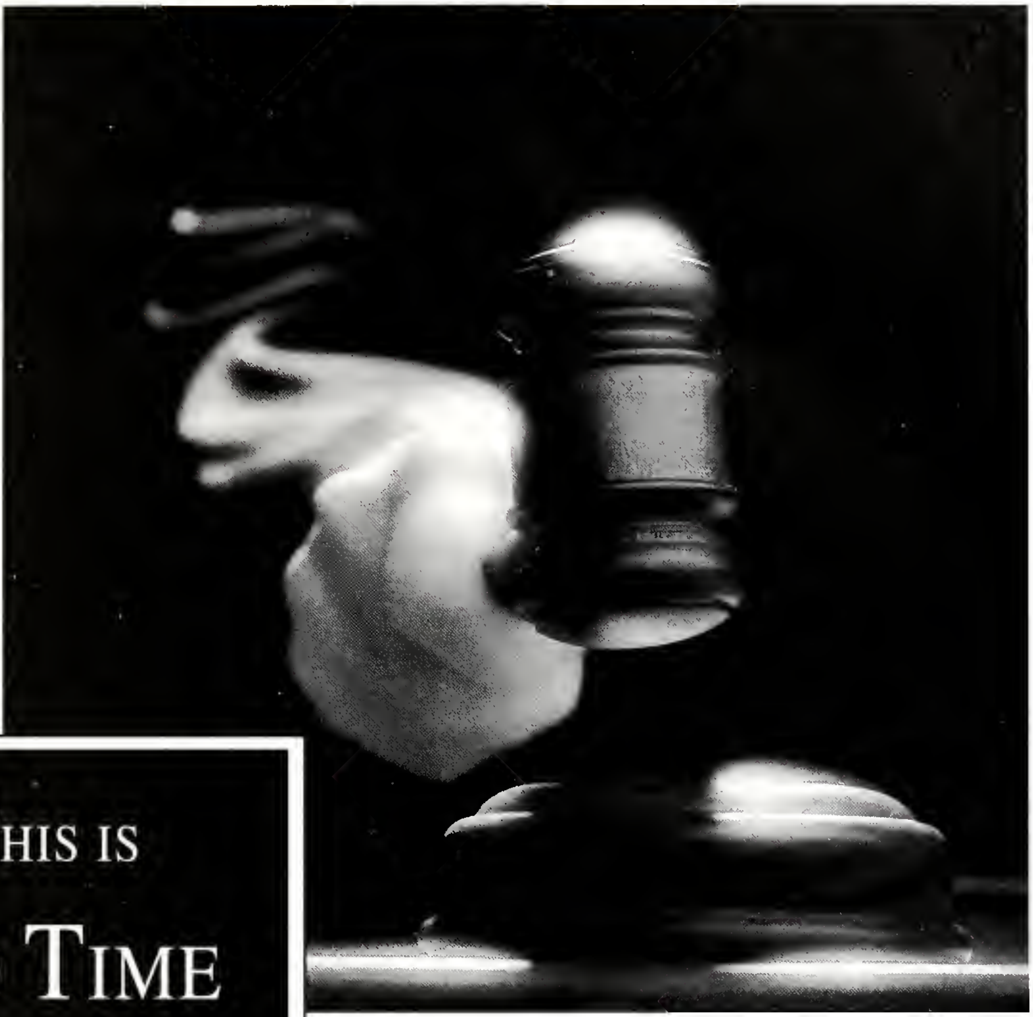
Giving up Smoking: A Personal Guide to Becoming Smoke-Free

Goldstein, Adam O., MD, North Carolina Medical Society Health Watch, Vol. 56, No. 1, January 1995

This brief self-help piece provides a four-page summary of why to quit, how to stay quit successfully, and how to develop a quit plan.

The copy in your January *NC Medical Journal* can be reproduced and used as a handout for patients. Additional copies of the *Journal* are available for $5 from Katherine Moore, (800) 722-1350.


FOR PATIENTS
NORTH CAROLINA MEDICAL SOCIETY
Health Watch
VOLUME 56 NUMBER 1 JANUARY 1995
Giving Up Smoking
A PERSONAL GUIDE TO BECOMING SMOKE-FREE
Adam O. Goldstein, MD
"Why should I quit?"
"How can I successfully quit?"



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UNC's Deans of Medicine

Reminiscences of a Septugenarian

John B. Graham, MD

I decided to write this essay when I realized that I had personally known seven of the nine deans of the University of North Carolina School of Medicine at Chapel Hill. It is a synoptic overview, punctuated by a few tidbits whose inclusion I hope will not interrupt the narrative flow.

Medical education has not always been conducted in schools headed by deans. For instance, UNC-CH's program was a "department" for the first 10 years of its existence (1890-1900). "Schools" and "deans" first appeared in Chapel Hill when Francis Preston Venable became president in 1900. Venable was a founding member of the "Medical Department" in 1890 and taught chemistry to medical students until he became president (and he clearly understood an abiding truth: pre-medical programs attract enough undergraduate chemistry majors to justify a faculty large enough to sustain a good chemistry department). From 1879-1880 Venable had studied in Germany where professional schools usually had deans, and as "The Great Organizer," he integrated UNC-CH's medical, law, and graduate programs into the University by converting them into schools. He over-reached himself, however, when he encouraged a separate clinical medical branch in Raleigh, a unit that did not survive the scrutiny of Dr. Abraham Flexner in 1909[1] (see Felts article, page 534).

Richard Whitehead—the first medically trained faculty member to draw a university salary—became first dean of the School of Medicine[2] (the Harris school of 1879-1885 was too primitive to be seriously regarded as a medical school). The medical school that opened on Whitehead's arrival in 1890 has operated continuously since. Whitehead bore the title of Professor of Anatomy from 1890, Anatomy and Pathology after 1896, and Dean after 1900. He was a senior professor rather than an administrator, but there was little work to do in those days except to admit, teach, discipline, and transfer students. Rare was the opportunity to recruit a new faculty member.

Table 1. UNC-CH medical school deans: 1900-1994

1900-1905	Richard H. Whitehead
1906-1932	Isaac H. Manning
1932-1936	Charles S. Mangum
1936-1940	William deB. MacNider
1940-1964	W. Reece Berryhill
1964-1971	Isaac M. Taylor
1971-1979	Christopher C. Fordham
1979-1994	Stuart O. Bondurant
1994-present	Michael Simmons

During its 104-year existence, there have been eight other medical deans (Table 1, above). I do not include Dr. Hubert Royster, dean of the clinical branch in Raleigh from 1900-1909 because the Raleigh branch was autonomous, short-lived, and received no financial support from the University.

My own association with the medical school began in 1938, and I have overlapped all but two of the deans. Whitehead departed for the University of Virginia in 1905—13 years before I was born—and Simmons arrived in 1994, nine years after I retired. My relationships with the other deans have ranged from student/teacher to associate dean, and I have watched the position metamorphose from that of a senior faculty member with administrative responsibilities to the overworked CEO of a medium-sized industry.

Deanly Characteristics

My impressions come from memories of my student days,[3,4] from working directly with deans, and from examining old University catalogs (in former times, a valuable summary of the year past, announcements for the year to come, and interesting material hidden between the lines). In general, the deans emerged from very similar backgrounds. Eight have been North Carolinians, Simmons the exception. Seven attended UNC-CH as undergraduates (Whitehead, Wake Forest, and Simmons,

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Harvard College). Five attended UNC-CH medical school (Mangum, Manning, MacNider, Berryhill, and Fordham) and four (Berryhill, Taylor, Fordham, and Simmons) graduated from Harvard Medical School. Contrasting the present dean with his predecessors should make an interesting study for a future historian.

The first eight deans fall into two groups: the long term and the short term. Long-term deans were Whitehead (15 years), Manning (26 years), Berryhill (23 years) and Bondurant (15 years). Short-termers were Mangum (four years), MacNider (four years), Taylor (seven years) and Fordham (nine years). The long-term deans must have enjoyed the position; the others served shorter terms for a variety of reasons (Mangum became ill; MacNider never wanted the job; Taylor burned out; Fordham moved to a higher position).

Manning, Mangum, MacNider, and Berryhill taught me physiology, anatomy, pharmacology, and physical diagnosis between 1938-1940. And I was closely associated with Berryhill as a faculty member during the last 16 years of his deanship.[5] I was a contemporary of Isaac Taylor who was an undergraduate at UNC-CH while I was a medical student, and I served from 1968-1970 as his associate dean. Christopher Fordham was my student (1947-1948) and co-associate dean from 1968 until he departed in 1969 to become dean at Augusta.

As a member of the Admissions Committee in 1948-1949, I interviewed and voted to offer admission to a pair of UNC-CH undergraduates—Stuart Bondurant and Earl Somers. Earl informed me years later that they had declined the offer and gone to Duke because of my abrasive personality. Earl, a delightful psychiatrist who has since died and cannot defend himself, failed to provoke me which is not surprising. It is widely known that butter doesn't melt in my mouth!

Deans Who Were Chapel Hill Natives

Manning, MacNider, and Mangum (together with Dr. Bullitt) were referred to by older alumni as "The Big Four" (Figure 1, at right). They were the major faculty of the school of basic medical sciences from 1913 until the 1940s. The "three Ms" were natives of Chapel Hill. Manning's father taught law; Mangum's father taught philosophy; and MacNider's mother operated a boarding house (Mallette Street is named for her family). From 1890-1900, the medical program consisted of a single year of courses in natural sciences, anatomy, physiology, and materia medica; a two-year curriculum that included pathology and bacteriology was also offered after 1896. Successful students transferred elsewhere to complete their clinical studies.

Mangum enrolled in the one-year program in 1891. He had been an outstanding athlete at UNC-CH, and is wearing a monogrammed sweater in early faculty photographs. After acquiring his MD at the University of Maryland, he joined the UNC-CH faculty in 1896 and taught there until his death in 1939. Manning entered medical school in 1894, finished at the Long Island School of Medicine, and returned as a faculty member in 1901. MacNider enrolled in 1899 and got his MD from the Raleigh clinical branch of UNC-CH in 1904. He had been a Demonstrator of Clinical Pathology in Raleigh as a student and taught this subject briefly in Raleigh.

Dean Manning. The "three Ms" had many odd jobs during Whitehead's final years as dean. Both Drs. Manning and MacNider taught pathology and bacteriology and Mangum taught materia medica as well as assisting with gross anatomy. Mangum operated a summer course in anatomy for physicians prepping for state board examinations. When Whitehead left in 1905, Isaac Hall Manning, professor of physiology, became dean; Mangum became professor of anatomy (formerly Whitehead's title); and MacNider became professor of pharmacology. David Dolley was recruited from Johns Hopkins University to fill a new post of professor of pathology (Whitehead's other title).

It is interesting that Manning, who was Mangum's junior, was appointed to succeed Whitehead as dean. Mangum was charming, quick-witted, and very popular, especially with alumni who were "jocks," but may have been regarded as "light-weight." Manning, on the other hand, was straightforward and reserved and would certainly have been regarded as "weighty." Besides, Chapel Hill was a close-knit place and Manning was the brother-in-law of President Venable, who would have been well aware of his sterling qualities. Without doubt he was a careful administrator of the relatively simple school of those days. He was an excellent teacher who delivered clear, well-organized lectures. His teaching lab and MacNider's were run by associate professors (who gave no lectures), and I don't remember ever seeing either professor in the lab. Manning had wisely recruited a PhD who had been trained in experimental physiology at Chicago; MacNider settled for a less-qualified former technician who had obtained an MD at Duke.

Manning resigned as dean in 1932 when President Frank P. Graham overruled his decision about the application of a Jewish student whose admission would have exceeded

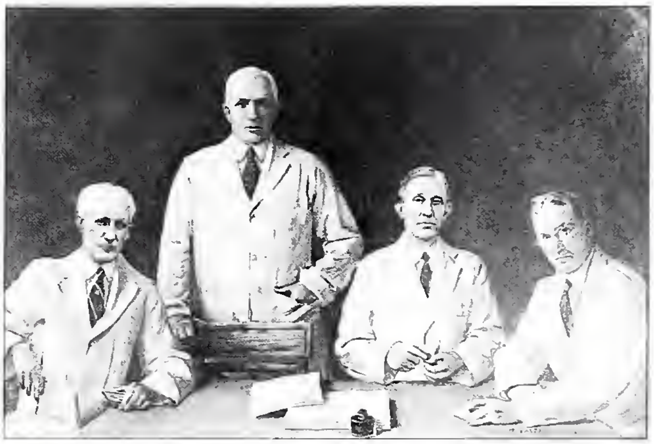

Fig 1: The "Big Four." Left to right: Drs. Mangum, Bullitt, and MacNider are sitting. Dr. Manning is standing.

Manning's unofficial quota. That episode was the subject of an interesting study by Dr. Edward C. Halperin[6] who was puzzled that Mangum and the other faculty members had supported Manning, but MacNider had not. He did not understand that relations between Manning and MacNider were always cool, Manning having won the hand of a local lady whom MacNider had hoped to marry.

Dean Mangum. Charles Staples Mangum succeeded Manning in 1932 and served as dean until 1936. He initiated the program (now School) of Public Health. I suspect that he gave up the deanship because of the early symptoms of his final illness. He was seriously ill when I studied gross anatomy in 1938, and I do not remember seeing him in the dissecting hall more than once or twice.

Nevertheless, he managed to conduct each member of my class through a grueling, half-hour, *mano-a-mano* examination of the skull. I slept very little the night before this *rite de passage* and had *frissons* at intervals all the next morning. After lunch I went to Mangum's small office under the staircase in Caldwell Hall. There I found a very thin and almost bald, elderly man with sparkling blue eyes and a mind as sharp as a tack. We sat knee-to-knee, I holding a skull in my lap. Using a probe as a pointer, he moved systematically over the base of the skull asking the name of each aperture and the identity of the nerve or blood vessel that traversed it. I must have passed the exam, because I finished the course, but he gave no indication that I had done so, and I do not remember ever seeing him again. He died later that year, of periarteritis nodosa it was rumored.

Selecting an assistant dean. Reece Berryhill, a native of Mecklenburg County, was Manning's protegé. He taught physiology from 1929-1930 while on a leave of absence from Case Western Reserve (in place of Manning who was on sabbatical). Berryhill returned permanently in 1933 as head of the Student Infirmary and in possession of a letter from President Graham assuring Graham's support for the establishment of a four-year school. Mangum also had a protegé, Augustus S. (Buck) Rose, who had been a teaching fellow in anatomy while a student at UNC-CH and had returned to teach anatomy after graduating from Harvard Medical School.

MacNider was reluctant to succeed Mangum, but agreed to do so if an assistant dean were appointed to admit, discipline, and transfer the students. Rose and Berryhill, fair-haired young Harvard graduates, were obvious candidates, and the assistant dean would clearly have the edge in succeeding MacNider, who gave every indication of resigning at the first opportunity. The naming of an assistant dean came to be seen as a contest between Manning and Mangum. Berryhill was appointed assistant dean in 1936; Rose returned to Boston, completed his clinical training, and eventually joined the new medical school at UCLA as head of neurology. Rose was very helpful in 1963 when I was Berryhill's assistant and needed to transfer a student to the West Coast to remove him from an intractable domestic situation. The tactic succeeded beyond our expectations. The student, who was close to flunking at UNC-CH, made Alpha Omega Alpha in the new environment.

Dean MacNider. I knew William deBerniere MacNider as a student in 1939-1940 and as a colleague from 1946 until his death in 1951. My opinion of him has fluctuated and is higher today than it was originally. I thought his course was outdated, poorly organized, and frustrating. He was old by then, a heavy cigarette smoker with chronic bronchitis headed toward emphysema and congestive heart failure. My chief memory of his lectures was the descriptions of his friendships with famous men. We also learned about ancient remedies such as mustard plasters and veratrum viride, and I remember him describing the effects on himself of smoking marijuana. He told us that it seemed to take him forever to walk the 50 feet across the front of the Chapel Hill post office. He left us with the impression that he had smoked marijuana for investigational purposes only.

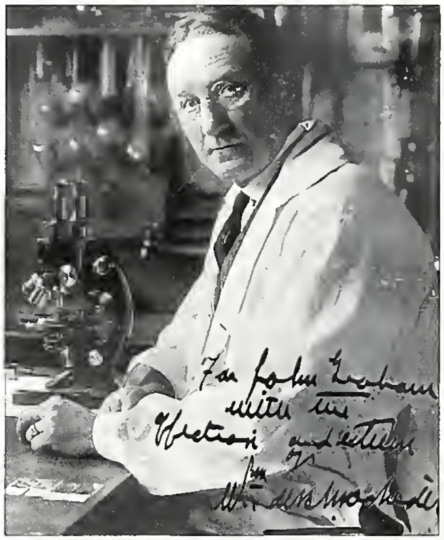

Fig 2: Dr. William deBerniere MacNider

When I joined the faculty in 1946 I lived out beyond MacNider's house on Franklin Street and walked the two miles home as often as I could. He was frequently at work in his garden, and he once showed me a beautiful avenue of crape myrtle behind his house. His garden was always in bloom, and he often took flowers to friends. I watched him plant two presumably long-lived, white oak saplings at the west ends of the wings of MacNider Hall a year or so before his death. Alas, the wings were extended 60 feet westward soon after his death and the saplings, which by now would have grown large and perhaps been known as the "MacNider Oaks," were uprooted by the bulldozers and trashed.

MacNider was kind to many people, and each year selected several students as protegés. This process consisted mainly of an exchange of pictures, and he had an entire wall covered with photographs of outstanding former students. He did not ask for mine, so I solicited his (Figure 2, above). In 1949 Dean Berryhill asked me to plan a social occasion to memorialize the 50th anniversary of MacNider's admission to medical school, to coincide with his retirement. We had a fine banquet in the Ballroom (now the Old Well Room) of the Carolina Inn. Dr. A. Newton Richards of Philadelphia, the first to catheterize the frog nephron and mentioned frequently in MacNider's lectures, gave the eulogy. Richards had a difficult job, because he did not have an elevated view of MacNider's research, but he was a real diplomat and struck the right note by referring to MacNider as "The Ambassador Extraordinary and Minister Plenipotentiary of the University of North Carolina." That perfectly epitomized MacNider's career.

MacNider was our school's shining star. He was highly regarded by the national medical establishment, elected a fellow of the National Academy of Sciences and the American Philosophical Society, and served as Chief Examiner in Pharmacology for the National Board. He was also highly regarded by the University, having been named one the first five Kenan professors. He was less esteemed by some of his colleagues at the medical school. Bullitt considered him excessively self-centered and careless with the property of others. But MacNider was not a shirker and responded effectively when asked, such as teaching pathology when Bullitt volunteered for service in World War I.

When the influenza pandemic struck in the fall of 1918 and 500 students were immobilized in the dormitories, Dr. MacNider organized the medical students into teams to make daily rounds on the sick. He carried on a worldwide correspondence using "penny" (now 20¢) postcards, and sent packets of flower seed to friends who were sick or needed attention. He was a complex man with many sides who elected to make his career in the town of his birth while achieving renown in the outside world.

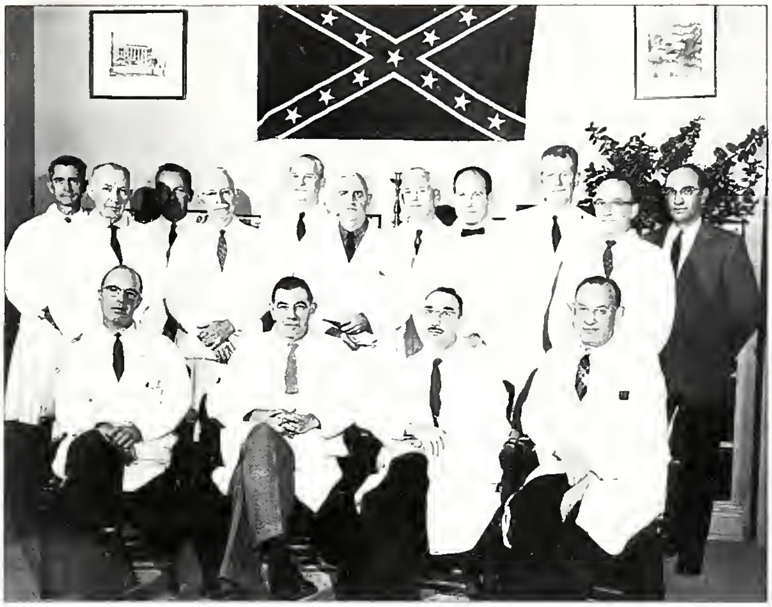

Fig 4: The Dean's Advisory Committtee in the dean's office, circa 1952. Seated are the dean and his three assistant deans: (left to right) Drs. Fleming, Berryhill, Richardson, Anderson. Standing are the chairmen: (left to right) Drs. Irvin (biochemistry), George and Hooker (anatomy), MacPherson (bacteriology), Ross (obstetrics/gynecology), Ferguson (physiology), Womack (surgery), Hawkins (psychiatry, for Ham), Curnen (pediatrics), Bream (radiology, for Wood), Cadmus (hospital administration). Drs. Butler (pharmacology), Brinkhous (pathology), Burnett (medicine), Wood, and Ham were absent. Note the Confederate battle flag.

Deans Who Were UNC-CH Alumni

Dean Berryhill. All recent deans, save Simmons, have been alumni of UNC-CH, either undergraduate or medical or both. Like most of my contemporaries, I think of Walter Reece Berryhill as "The Dean" (Figure 3, at right). He was not perfect, as I pointed out in an earlier assessment,[5] but his accomplishments were great. He succeeded in bringing to fruition the four-year medical school which Manning, his mentor, had not. This is no reflection on Dean Manning, who had a much more difficult problem. Circumstances after WW II were much easier than those after WW I, a post-war period characterized by both a depressed economy and xenophobia. Berryhill recruited an outstanding set of clinical department chairmen from the national pool and prepared the ground well for his successors. Indeed, in a burst of hyperbole, Dean Wilburt Davison of Duke exclaimed that Berryhill's clinical chairmen were superior to those Welch had recruited to establish Johns Hopkins. Davison had performed a similar feat when he established Duke Medical School in 1930.

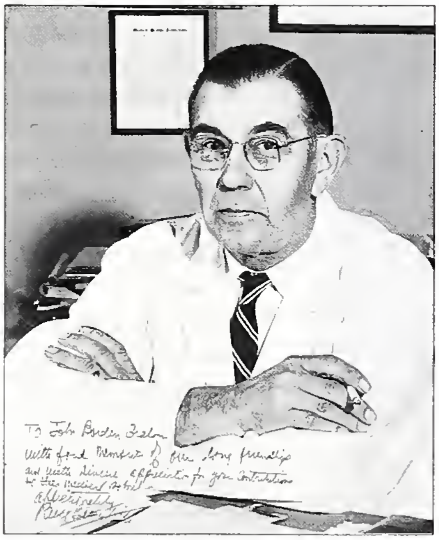
To John Borden [illegible]
with fond memories of our long friendship
and with sincere appreciation for your contributions
to the medical school
affectionately
Reece Berryhill

Fig 3: Dr. Walter Reece Berryhill

But the new chairmen had a very different attitude toward racial segregation than that which Berryhill had imbibed with mother's milk. The difference is seen in a photograph of the department chairmen taken in the Dean's office where one wall is decorated with a Confederate battle flag (Figure 4, above). Putting the welfare of the institution first, however, he quietly modified his attitudes and practices. The Confederate flag disappeared—according to legend, stolen by students who broke in over a weekend. I prefer to believe that Berryhill removed it of his own volition. At any rate he did not replace it, and Ed Diggs, our first black student, was admitted to the medical school in 1951, shortly after Floyd McKissick was admitted to the law school.

After retiring as dean, Berryhill devoted himself to establishing the statewide network of hospitals affiliated with UNC-CH that had been promised by the General Assembly in 1947. He did much of the spadework necessary for the eventual success of the Area Health Education Centers (AHECs), the most nearly unique feature of the UNC-CH medical set-up.

Dean Taylor. Isaac Montrose Taylor moved directly to Harvard Medical School after graduating from UNC-CH, and was president of his class during each of his four years there. He was a house officer at the Massachusetts General Hospital and in the first cadre of internists recruited by Charles Burnett when the school was expanded in 1950. Taylor was (and still is) a charming, witty, highly intelligent man. His career as a medical academician wasn't as outstanding as it might have been, but when the opportunity arose to plan the physical facilities for expansion of the school, he took to this like a duck to water. He accepted the deanship when Berryhill retired.

Taylor's private life was turbulent, his children reaching adolescence while he was dean, and he was under heavy pressure from the faculty to expand the facilities. The tasks were daunting, and the faculty proposed that he recruit associate deans to deal with the details. Chris Fordham and I were appointed, lifting a great deal of his load, and he quickly began to function effectively. Figure 5, below, shows Deans Taylor and Bondurant with a group of faculty contemporaries who spoke at the dedication of the Taylor (formerly Swing) Building in the late 1980s.

During the 1960s, the NIH funded medical school facilities in order to expand student capacity, the then current Congressional theory being that the cost of medical care would decrease if enough MDs were trained. We managed to parlay private, state, and federal funds into a number of badly needed buildings—Berryhill Hall, the Burnett-Womack Building, the hospital Bed Tower, the Swing (now Taylor) Building, the Biological Sciences Research Center, and a number of mobile home-type trailers. Any faculty member or group with the funds to do so could purchase a trailer and place it on the grounds. One of my first acts as associate dean was to draw a map showing where the 30 or so trailers were located and who occupied them.

The faculty decided in the mid-1960s to change the medical curriculum. It had been based on a conservative Scottish educational model whose virtues were that it was inexpensive, had been nationally adopted since Flexner's time, and permitted students to transfer easily between schools. Its weaknesses were stodginess and a lack of novelty. The new curriculum was based on the "Western Reserve model," an idiosyncratic, labor-intensive, and expensive way to teach. The major changes largely affected the basic science years, the third-year and fourth-year curricula remaining very similar to those I experienced as a student at Cornell University in the 1940s. The clinical years did see the introduction of electives, the opportunity for students to take clerkships in the AHEC hospitals, and easy permission to take electives elsewhere.

All basic science laboratory exercises involving living animals were abolished, and lectures and demonstration were given from 8 a.m. to 1 p.m., Monday through Friday. New courses were designed to involve teachers from multiple departments, thereby removing the control of course content from basic science department chairmen. Ironically, this reverted the curriculum to that existing before 1929. In 1928 there were no "departments;" there were instead "courses of instruction" in anatomy, histology, embryology, physiology, pharmacology, pathology, bacteriology, etc. In 1929 the same courses became the responsibilities of "Departments" of Anatomy, Physiology, Pharmacology, Pathology, and Bacteriology. In 1970 a number of the departmental courses were lumped together under new names. For example, pathology, microbiology, and introductory medicine became "mechanisms of disease." It is easy for an observer with a synoptic view to see that this type of change is novel, not fundamental.

Each course had a director, usually a junior member of the faculty, but the scheme suffered from a basic flaw: it separated authority from responsibility. Department chairmen had no control of the curriculum, but were expected to recruit, house, and pay the faculty who taught it. It was obviously more advantageous for chairs to recruit researchers who could draw in research funds and thereby build the department than to find and promote good teachers. This problem still exists, although it has been alleviated to some extent. My conclusion from the curricular *Sturm und Drang* of the past 25 years is that when the students are sufficiently intelligent—and medical students are drawn from the upper 5% of IQs in the population—the type of curriculum doesn't matter much. Taylor's great legacy was not a "new curriculum," but a badly needed set of new buildings.

Almost two decades after his departure, the University recognized Dean Taylor's service by

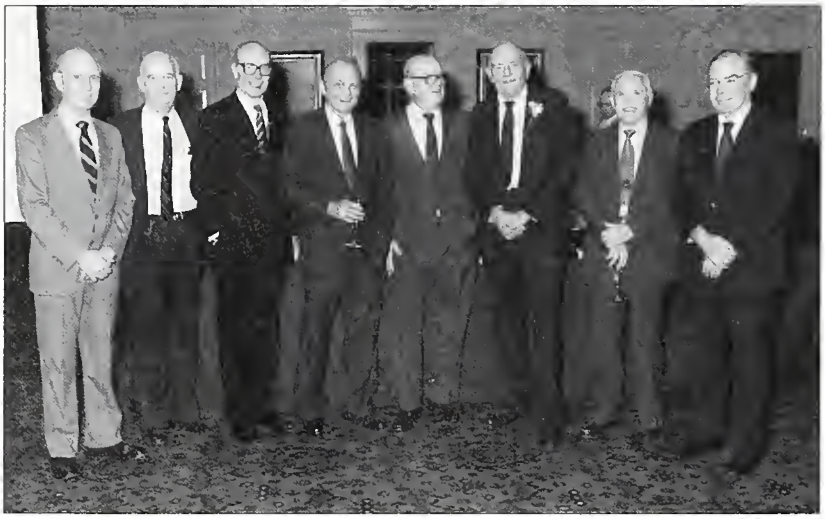

Fig 5: The "Little Eight." Photo taken during ceremonies dedicating the Taylor (formerly Swing) Building. Deans Taylor and Bondurant are present with faculty members who had "roasted" former Dean Taylor. Left to right: Drs. William Huffines, William Blythe, Stuart Bondurant, Judson Van Wyk, Philip Manire, Isaac Taylor, John Graham, and Carl Gottschalk. Dr. Glenn Wilson was absent.

naming the "Swing" building the "Taylor" building. It presently houses the Department of Cell Biology and Anatomy.

Dean Fordham. Christopher Columbus Fordham (Figure 6, below), another graduate of UNC-CH and Harvard Medical School, became dean in 1971. He had found private practice unsatisfying and had not been an outstandingly successful member of the faculty. His fortés were his skills in dealing with people and in making decisions. He succeeded Taylor after having spent several years in administration at Chapel Hill and two years as dean at the Medical College of Georgia.

Taylor left one additional building planned and financed, and one other in the offing. Fordham had different problems. President Jenkins of East Carolina University was well along the political road to establishing a second state medical school to compete with Chapel Hill for state funds. And a number of difficult medical school-hospital relationships had to be dealt with.

Fig 6: Dr. Christopher Columbus Fordham

Fordham had one hospital-medical school problem which he could solve at once; the state of chaos in clinical laboratory medicine. Several years earlier a study commission had recommended that the clinical laboratories be centralized, but the plan had been stalled by inertia and opposition from those threatened by centralization. Besides, necessary funds were not available. Fordham had the problem reassessed by William McLendon, a pathologist from Greensboro, whose report favored consolidation and indicated how Medicare and Medicaid, and other federal programs, might provide funds. Fordham ordered the change and appointed McLendon director. The change was expensive, but the new arrangements have worked well.

The dean was able to change the laboratory organization because the NC Memorial Hospital was then the direct responsibility of the Dean of the School of Medicine—a result of the faculty revolt of 1957.[5] Such a decision would not be possible today because of an administrative change precipitated by the inability of Dean Fordham and his delegates to efficiently manage ordinary hospital operations. Responsibility for the hospital became vested in a separate Board of Directors, which selects the hospital director. The hospital's Board of Directors are appointed by the Board of Governors and function independently of the Trustees who supervise the rest of UNC-CH, including the medical school. The hospital occupies land that is presumably the responsibility of the Trustees—and its heat, power, and water arrive in UNC-CH transmission lines—but decisions about the hospital are made independently.

The hospital has undertaken a self-defined building program that is independent of the rest of the University. Fortunately the Dean of Medicine is an ex-officio member of the Board of Directors although he lacks veto power. It is fair to say that the present arrangement works better with ordinary hospital problems than the previous one. There will always be tension between the hospital and medical school, but the present system is about as good as we can hope for. Its weakness is that it depends heavily on compatibility between dean and director, the lack of which led to the faculty revolt of 1957.

Fordham and his advisors failed to outmaneuver President Jenkins of ECU. They increased enrollment at UNC-CH, hoping to demonstrate that a second state medical school was unnecessary. The annual intake of students at Chapel Hill increased from 85 to 140, but this had no effect on Jenkins's campaign. They had misperceived Jenkins's basic motives and the strength of his support. He wanted a medical school at ECU, not because more doctors were needed but because he believed (correctly) that having a medical school on the Greenville campus would goad a somnolent educational institution into becoming a much better one. He had great aspirations for the former teacher's college, which was destined to become his monument.

Fordham was offered the position of Vice Chancellor of Health Sciences in 1977 when Cecil Sheps relinquished it. He agreed to serve only if he could continue as Dean of Medicine. He served in both capacities until 1980 when he succeeded Ferebee Taylor as chancellor. Within a year he had a stroke. He did not, however, relinquish the chancellorship until 1988, demonstrating that it is possible for a chancellor to function adequately while spending only two hours a day in his office.

Fordham was one of a kind. He served in more varied high offices than any medically trained official in the University's history. He was very popular. He has been rewarded both by the University, which named a building in his honor, and by the town, which named a boulevard for him. In fact, it is almost axiomatic that the name of each medical dean be assigned to a University building.

Dean Bondurant. Stuart Osborne Bondurant fitted the classical model of a UNC medical dean. He is a native of Winston-Salem and was an undergraduate at UNC-CH. He got his MD at Duke rather than Harvard because, as noted earlier, he declined admission to the UNC school of basic medical sciences. He was very well prepared for the deanship, having held faculty positions and been chairman of a Department of Internal Medicine, and medical dean at the State University of New York at Albany. He made a strong and successful effort to continue the traditions established by his predecessors and included Mrs. Berryhill and retired faculty members in many of the school's activities.

Bondurant's years as dean, 1979-1994, were a time of great change, in medical schools and throughout American society. There were major changes in the roles of women and minorities, both students and faculty, and staff. In 1979, women and blacks made up only small minorities of the medical student body. By 1994, white men were in the minority, and many newly created external agencies limited the freedom of medical schools to discharge their primary roles of teaching, research, and service to patients. At present, the school tries to conform to rules generated by more than 160 different state and federal agencies, some of which can impose severe penalties for non-compliance. This environment has required the hiring of many new types of staff and development of new procedures in order to comply; and the administrative corps has grown steadily. Berryhill operated with a handful of assistants located in a few rooms near the present dean's office in MacNider Hall. When Dean Bondurant retired, his staff occupied most of MacNider Hall.

Rapidly evolving technology was the major challenge faced by Bondurant. This was met by promoting the Program in Molecular Biology and Biotechnology, and by institutionalizing modern biology through the Curriculum in Genetics, the Lineberger Cancer Center, and the various departments of biological science. There was comparable support for developments in the clinical realm, most notably the programs of organ transplantation—kidney, heart, lung, liver, and bone marrow.

Bondurant regards the curriculum revision of 1984 as a key accomplishment of his deanship (as mentioned earlier, I have reservations about the importance of such changes). He believes that the 1984 curriculum is "more closely matched to changing sciences, technology, and human aspects [of medicine] and...itself changes continuously rather than periodically every decade or so." As a child of the Great Depression, I think it is unnecessarily expensive educational tinkering, but my disagreement may be even more fundamental and lies in a differing view of the importance of physicians in our society. I see physicians not as demigods for whose education no effort is too great, but merely as major players in medical care who are essential for maintaining the health of the public and assisting the elderly to easily and gracefully join their ancestors.

An often overlooked administrative burden appears whenever a new academic department or program is created. Five new departments and more than a dozen new centers were created during Bondurant's deanship. Each unit's chair or director is chosen by a "search." Searches are expensive because they require much staff work and travel, but their greatest cost—lost productivity on the part of the search committee—is invisible. Our school gives five-year terms to department chairs and directors, laudably democratic but with a downside. It means that, on the average, a school with 20 departments must either re-appoint or newly appoint four chairs each year, a heavy burden on the faculty who make the "searches" and on the dean who must make the decisions. Directors of centers are also reviewed every five years but less exhaustively. Bondurant regarded these personnel decisions as his most important function and has devoted much of his energy to them.

The budget of the school increased greatly during Bondurant's term of office, and a number of new buildings were constructed with funds from non-legislative sources. Initiatives like curriculum review, affirmative action, tighter control of overhead funds, and surveillance for scientific dishonesty have greatly increased the number of mid- and low-level administrators—and the dean's budget. Bondurant believes that the school's finances are in reasonably good shape, with funds coming from three reliable sources: state appropriations, research grants, and private practice. He was very sanguine about near-term finances when I interviewed him late in 1994, although he admitted that Dean Simmons would probably have to tighten some loose screws. He pointed out that the revenue from each source increased greatly during his term of office, and profits from practice provided the reserves that support the revenue bonds issued to build the new Ambulatory Care Center.

A final word about Bondurant, who has been kind to me. He is far and away the most intellectual of the seven deans I have known. He is widely read and is the only one I have known who was already conversant with almost everything I have discussed with him. His predecessors were estimable men and excellent leaders, but none had his intellectual breadth and depth.

Epilogue

The new dean, Michael Simmons, represents a break with the past. Although a graduate of Harvard Medical School, he is not a North Carolinian or a UNC-CH alumnus. He should bring a breath of fresh air into the school, and I hope that I shall live long enough and be sufficiently sentient to accurately assess his accomplishments. ❑

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The North Carolina Mutual Life Insurance Company, Dr. Clyde Henry Donnell, and the Health Education of Blacks

Edward C. Halperin, MD

Insurance has existed since ancient times. The first forms were developed in Babylon, Greece, and Rome to protect merchants against loss of cargo at sea. Then, as now, insurance was a device for dealing with risk. It diminishes the economic consequences of disastrous events such as death, disability, illness, fire, theft, marine disaster, workplace injury, and liability for injury to persons and property. The insurer, for a fee, promises to reimburse the insured for an accidental loss during a specified time period.

Insurance relies on the "law of large numbers." In a large, homogeneous population, it is possible to estimate the frequency of "rare" events such as death, fire, and accidents. Losses can be predicted with reasonable accuracy. The insurer charges a fee (the "premium") to participating members of the population. For the individual insured, the premium is small compared to the potential loss should a catastrophe occur. Those who suffer loss are reimbursed from the pool of funds generated by the premiums. Insurance, therefore, is a way of spreading risk throughout the population.[1]

Insurance for Blacks

The first North American insurance enterprise for the care of the sick and poor of the black community was, as far as is known, founded in Philadelphia by free blacks in 1787. The preamble of the "Free African Society" set out the principles of the society and its insurance practices:

> "Whereas, Absalom Jones and Richard Allen, two men of the African race, who, for their religious life and conversation, have obtained a good report among men, these persons, from a love to the people of their complexion whom they beheld with sorrow because of their irreligious and uncivilized state, often communed together upon this painful and important subject in order to form some kind of religious society, but there being too few to be found under like concern, and those that were, differed in their religious sentiments; with these circumstances, they labored for some time, to those proposed after a serious communication of sentiments, the Society should be formed without regards to religious tenets, provided the persons lived an orderly and sober life in order to support one another in sickness and for the benefit of their fatherless children...we, the free Africans and their descendants of the City of Philadelphia in the State of Pennsylvania or elsewhere do unanimously agree, for the benefit of each other, to advance one shilling in silver, Pennsylvania currency, monthly and after one year's subscription from the day hereof, then to hand forth to the needy of the Society, if it should require, the sum of three shillings and nine-pence per week of said money; provided this necessity is not brought on them by their own imprudence.... Also, we apprehended to be just and reasonable that the surviving widow of a deceased member should enjoy the benefits of this Society as long as she remains his widow, complying with the rules thereof, accepting the subscriptions. And we apprehended to be necessary that the children of our deceased members be under the care of the Society so far as to pay their schooling, if they cannot attend a free school; also to put them out as apprentices to suitable trades or places if required."[2]

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Not surprisingly, this first insurance company for blacks fell on hard economic times. The arbitrary weekly assessment was fixed, and the premium was not dependent on age or physical condition. Other insurance companies for blacks followed, and a variety of such enterprises, intended to provide mutual protection against sickness and aid at the time of death, were organized in the South in the mid-19th century.[2]

White insurance companies actively competed for black clients during the mid-to-late 19th century. In 1881, however, Frederick L. Hoffman, statistician for the Prudential Insurance Company, published a study that significantly changed the attitude of most white insurance companies toward blacks:

> "The colored population had also become considerably interested in [insurance]...and was now an increasing number availing itself of this opportunity to provide for the contingencies of life. Careful investigations, including the Company's own experience, and data collected for a large number of American cities, pointed to an excessive mortality among this element of the population, so much so that it became apparent that unless the Company adopted a restrictive course, it would soon find itself in difficulties because of inordinate losses experienced on this class of policy-holders."[3]

White-owned companies chose to reduce the size of the policies they wrote for blacks. They also significantly increased their premiums. This action fueled the growth of black-owned insurance companies including, starting in October 1898, the North Carolina Mutual Life Insurance Company in Durham.[4,5] By 1920 the Company had $33 million of insurance in force.[6] Most of the insurance business among blacks continued to be controlled by white-owned companies, but the North Carolina Mutual and other black-owned companies made inroads into the black community.[2]

Dr. Clyde Donnell and Health Education for Blacks

During its formative years, the North Carolina Mutual Life Insurance Company noted an exceptionally poor mortality experience. The national death rate among blacks was at least 33% higher than that of whites from 1900 through 1940 (Table 1), a discrepancy that becomes even more apparent when age-adjusted death rates are considered (Table 2). The death rate in North Carolina paralleled the national trend. In 1930, for example, mortality in North Carolina was 1.57 time higher for blacks than whites (Table 3). Tuberculosis was the principle cause of the excess mortality, accounting for 11% of all deaths of blacks in the US in 1930.[6-9]

NC Mutual decided that, to sustain itself, it needed not

Table 1. Deaths per thousand population, by race*

Year	White	Negro & Other	Ratio
1900	17	25	1.47
1910	14.5	21.7	1.50
1920	12.6	17.7	1.40
1930	10.8	16.3	1.5
1940	10.4	13.8	1.3
1950	9.5	11.2	1.17
1960	9.5	10.1	1.06
1970	9.5	9.4	0.9

*"White" and "Negro" are used in the reference: US Dept. of Commerce: Historical Statistics of the United States: Colonial Times to 1970. Washington, DC: US Government Printing Office, 1975, p. 59.

Table 2. Age-adjusted deaths per thousand population, by race*

Year	White	Negro & Other	Ratio
1900	17.6	27.8	1.6
1910	15.6	24.1	1.54
1920	13.7	20.6	1.5
1930	11.7	20.1	1.72
1940	10.2	16.3	1.6
1950	8	12.3	1.54
1960	7.3	10.5	1.44
1970	6.8	9.8	1.44

*"White" and "Negro" are used in the reference: US Dept. of Commerce: Historical Statistics of the United States: Colonial Times to 1970. Washington, DC: US Government Printing Office, 1975, p. 59.

Table 3. North Carolina deaths per thousand population in 1930, by race*

	White	Colored	Ratio
Total	9.6	15.1	1.57
Cities	12.6	20.2	1.60
Incorporated areas	10.9	18.6	1.70
Rural	8.8	13.4	1.52

*"White" and "Colored" are used in the reference: US Department of Commerce. Mortality Statistics, 1930. Washington, DC: US Government Printing Office, 1934, p. 73.

Table 4. NC Mutual Life Insurance Co., ratio of actual to expected mortality rates*

Year	Ratio
1917	1.239
1920	1.092
1925	1.234
1930	1.29

*1952 typescript completed by D.H. Bennett, Jr., associate actuary, NC Mutual, Spaulding Papers; also Weare, p 127.

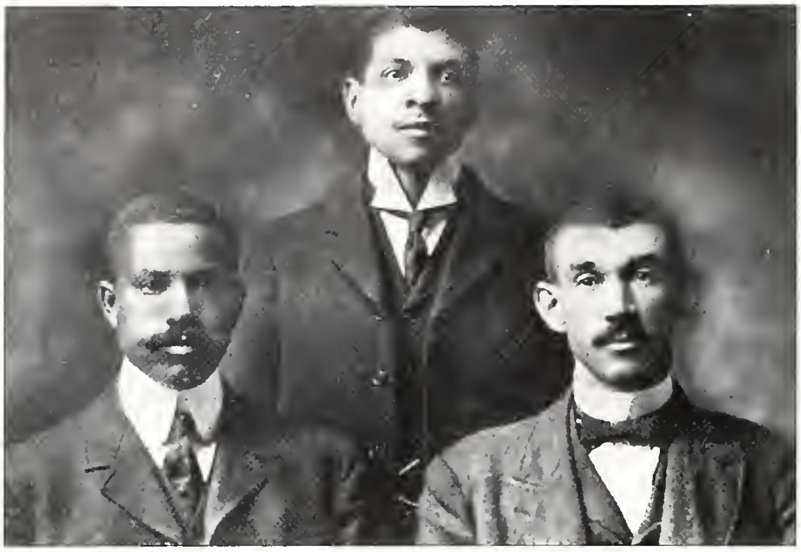

Fig 1: The moving forces behind the NC Mutual Life Insurance Company. Left to right: John Merrick, barber and local businessman; C. C. Spaulding, salesman and office manager; and Dr. A. M. Moore, physician. Reprinted with permission from W. B. Weare's *Black Business in the New South: A Social History of the NC Mutual Life Insurance Company*, Univ. of Ill. Press, 1973.

only to select healthier customers, but to improve the health of blacks in general (Table 4, previous page). Among the founders of the Company was Dr. Aaron McDuffie Moore, Durham's first black physician and the unofficial medical director of NC Mutual (Figure 1, above). In 1917, Dr. Clyde Henry Donnell joined Dr. Moore in his medical practice. He would play a major role in health education efforts carried out by the company.[6]

Clyde Henry Donnell was born August 4, 1890, in Greensboro. He was the son of Smith Donnell, a local real estate developer, and Lula Ingall Donnell. Donnell was raised in Greensboro where he attended the public schools for blacks, and the high school operated by North Carolina Agricultural and Technical University. He received an AB degree in 1911 from Howard University in Washington, DC, and an MD degree in 1915 from Harvard.[6,10-14]

While at Harvard, Donnell became particularly interested in public health problems and came under the influence of Milton J. Rosenau (1869-1946). Rosenau, after getting his MD from the University of Pennsylvania in 1889, worked in Berlin, Paris, and Vienna. Later, his work in the hygienic laboratory of the US Public Health Service on the thermal death points of pathogenic bacteria did much to settle the question of whether thermal treatment destroyed the pathogenic bacteria carried by infected milk.[15] Rosenau observed that 140°F for 20 minutes killed bacteria; this inspired general confidence in the use of low temperatures for pasteurization. Rosenau also made an important contribution to the study of anaphylactic shock with his "Study of the Cause of Sudden Death Following the Injection of Horse Serum."[16] Rosenau, author of *Preventive Medicine and Hygiene*, founded the world's first School of Public Health at Harvard in 1909, and organized the School of Public Health at the University of North Carolina at Chapel Hill in 1935 (see articles by Felts, page 534, and Graham, page 562).[17-19]

Since few hospitals would accept blacks as interns when Donnell graduated, he rotated as a fellow and observer at Boston City Hospital, Massachusetts General Hospital, and the Children's Hospital from 1915 to 1916. In 1916 he received a North Carolina medical license and returned to North Carolina in 1917. There he met and married Martha Merrick, the youngest daughter of John Merrick, one of the founders of NC Mutual (Figure 2, below). After Donnell joined Moore in practice, their office shared a building with the insurance company's home office.[6,10-14,20]

Donnell (Figure 3, next page) was hired by the company in 1917, and became the its medical director following Dr. Moore's death in 1923. As medical director, Donnell hired black physicians to replace white physicians in conducting field examinations of prospective policy-holders. Complex cases or prospective purchasers of large policies were referred to Donnell for definitive examination. Donnell hired another black physician, Dr. Roscoe Brown, a former employee of the US Public Health Service, as his assistant. The second floor of the home office was used for both Donnell's private practice and for company work. They saw many patients, including company employees, daily. Donnell had a special interest in tuberculosis and the therapeutic use of ultraviolet light.[2,6,14]

Together with Dr. Moore, Dr. Donnell created NC Mutual's "Life Extension Department." This department conducted lecture tours, showed films, and distributed health promotion bulletins

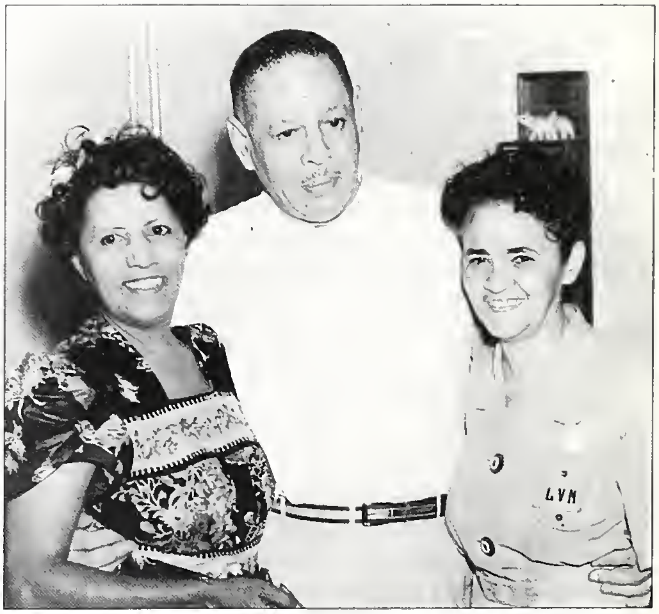

Fig 2: Left to right—Martha Merrick Donnell; Dr. Clyde Henry Donnell, first full-time medical director of NC Mutual; and Lydia Merrick. Reprinted with permission from the collection of Dr. Charles D. Watts.

from state and federal health departments along with a variety of pamphlets of its own. The Life Extension health bulletins explained to policy-holders the nature of a thorough physical examination and its importance to the individual and the community; the dangers of tuberculosis; the nature of communicable diseases such as diphtheria, measles, small pox, and scarlet fever; articles on saliva-borne diseases and their prevention; and the benefits of immunizations. Sales agents distributed the health education materials, which contained advice that was characteristically straightforward and directive (see sidebar, at right).[2,6,14,21]

Donnell was deeply committed to continuing medical education for black physicians. These physicians maintained their own local, state, and national medical associations, similar to the better-known all-white societies. Donnell was founder and primary mover in Durham's Academy of Medicine, Pharmacy, and Dentistry. He was also active in the Old North State Medical Society and the National Medical Association. He served the latter group as journal editor and secretary-treasurer. Donnell was also Chairman of the Board of Trustees of Durham's Lincoln Hospital—a 150-bed facility for blacks.[6,10-12,14,20,22,23]

From "Health Education," a leaflet produced by Dr. Donnell's department,[6] circa 1920s-1930s

If observed, will help you keep well and live longer:

- ✓ You cannot bring up healthy people in unhealthy homes; therefore, keep your home bright, clean, and cheerful.
- ✓ Ventilate properly every room in your home.
- ✓ Keep disease-carrying insects out by screening every window, door, or other opening.
- ✓ Keep all rubbish and other filth cleaned off your premises and all garbage cans and privies screened against flies.
- ✓ Don't allow stagnant water to remain on your premises. It is the breeding place of mosquitos.
- ✓ Sleep in the fresh air always; in the open if you can, and, where it is possible, sleep alone.
- ✓ Always wash your hands before eating, and do not overeat. This applies especially to meats and eggs.
- ✓ Eat plenty of fruit; also some hard and bulky foods.
- ✓ Eat slowly; chew thoroughly. Drink plenty of water daily.
- ✓ See that the bowels move freely at least once each day.
- ✓ Work, play, rest, and sleep in moderation.
- ✓ Don't worry. Worry is the foe of health. Nothing has ever been changed by worry but your health.
- ✓ Beware of patent medicines. Consult your physician when your system shows signs of impairment.

The Impact of the Life Extension Department

There was no clear decline in mortality of the company's policy-holders following the establishment of the Life Extension Department. Changes in the economic and social status of blacks during this period make it difficult to identify any particular benefit from the department—although it clearly served the company as a valuable marketing tool.[6] The company's financial status significantly improved only after the hiring of Asa Spaulding, the United States' first black actuary. By combining Donnell's medical knowledge with Spaulding's actuarial training, the company was able to institute underwriting reforms and adopt insurance practices particularly suited to the health status of Southern blacks.[6] These significantly improved the company's profitability. NC Mutual ultimately became, and remains, the largest black-owned insurance company in the US with $218 million in assets.[24]

Conclusion

Dr. Donnell is remembered as an ebullient, gregarious, generous, outgoing, "people person." Acquaintances recall him as "full of fun," always ready with a joke, and fond of socializing. He enjoyed walking in Durham's black neighborhoods and chatting with tradespeople.[14,20,25] Donnell rose in the NC Mutual organization to become vice president and member of the Board of Directors. NC Mutual was closely tied to Durham's black-owned Mechanics and Farmers Bank. At the time of his death, Donnell chaired the bank's Board of Directors.[10,12]

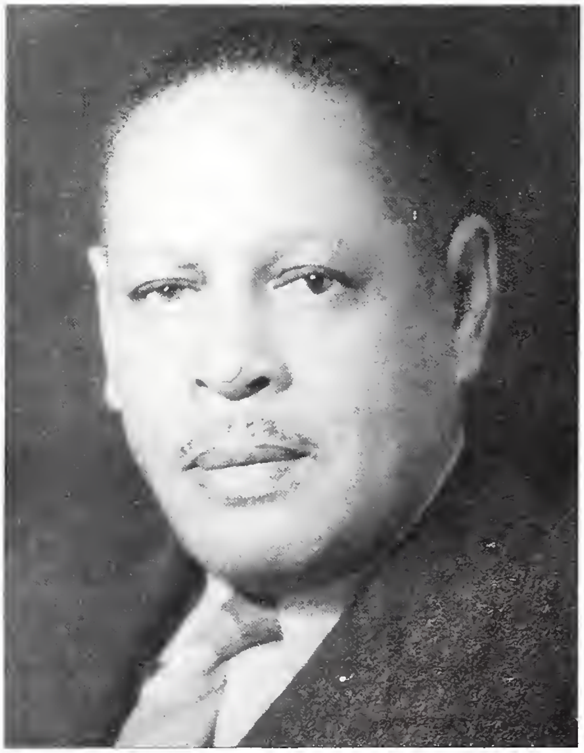

Fig 3 (right): Dr. Donnell, a formal sitting. Reprinted with permission from the collection of Dr. Charles D. Watts.

Donnell died at Duke University Medical Center in 1971 at age 80. His life's work illustrates the efforts of blacks to improve their health status through public health education and continuing medical education of physicians. In Donnell's case, these efforts were undertaken for altruistic reasons, as well as for the economic benefits to the company and his fellow black physicians. ❑

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Carolina Physician's Bookshelf

The Illustrated History of Medicine

Sournia, Jean-Charles. Suffolk, England: Harold Starke Publishers, Limited, 1992, ISBN 1-872457-05-3, $195

Reviewed by Edward C. Halperin, MD, Journal *Deputy Editor, Professor and Vice Chair, Department of Radiation Oncology, Duke University Medical Center, Durham*

The "coffee table book" is a peculiar genre of publishing. Books of this sort are generally physically large ("oversize" in the vernacular of publishers and librarians), profusely illustrated, and with a limited text. They are, as the name implies, designed for display in a living or family room, arranged on a table, with an attractive dust cover. Guests are invited to flip through the volume, admiring the illustrations—they are, in this sense, "conversation pieces." Art, photography, and antiques are favorite subjects for coffee table books.

You will always find an assortment of coffee table books in the gift shops of our great museums. After an afternoon at the Metropolitan Museum of Art, the tourist is susceptible to picking up a collection of bound reproductions of Impressionist paintings to bring back home. Coffee table books are also favorite gift items. A trip to any bookseller will disclose a variety of hefty books containing Victorian-era *Vanity Fair* prints of members of the bar (suitable for the ambulance chaser on your Christmas gift list), a volume of adorable kitten pictures (designed for that aunt of yours who describes her assortment of little fur balls with overbearing affection), and other notables with lofty titles like *An Illustrated History of Furniture* or *Treasures of the Czars Plundered by the Bolsheviks.*

Medicine and nursing have jumped into the coffee table book world with both feet. There are massive, profusely illustrated histories available of medicine, surgery, nursing, and radiology. Some of these are serious historical works, others are clearly designed with no serious reading intended.

Jean-Charles Sournia, a French surgeon, earned his historian's stripes by co-authoring the eight-volume *Histoire Generale de la Medecine, de la Pharmacie, de l'Art Dentaire et de l'Art Veterinaire.* His book, *The Illustrated History of Medicine,* certainly meets the anatomic criteria for a coffee table book. Its dimensions are 13 1/4" x 10" x 2" thick and it weighs in at seven pounds. A multicolored dust cover wraps around a brown binding with gold lettering. There are 700 illustrations within the 600 pages, including more than 300 in color.

Sournia provides the casual book browser with a feast for the eyes. The illustrations are beautifully reproduced and furnished with detailed captions. *The Illustrated History of Medicine*, however, differs from the typical coffee table book insofar as its text is a scholarly survey of medical history. Sournia has the expected chapters on medicine of the ancient Egyptians, Greeks, and Romans. There is a fine survey of Western medicine in the Middle Ages, Renaissance, the 17th and 18th centuries, and the rise of scientific medicine. There are also some special treats for the Western reader: surveys of medicine under Islam rule; medicine in China before the influence of the West, post-Talmudic ancient Jewish medicine, and medical practices of Native North and South Americans before the arrival of the Europeans. Sournia articulates various historical schools of thought concerning each era before voicing his own opinion. I disagreed with his interpretation of certain events, but he cannot be faulted on his presentation of historical facts.

For the serious student of medical history, the professor designing a medical school introductory course, or for the amateur looking for an introduction to the subject, *The Illustrated History of Medicine* will probably be found wanting. There are no footnotes, the bibliography largely consists of secondary sources, and, by necessity, the treatment of most subjects is brief. The time-strapped practicing physician, however, looking for a leisurely tour of the panorama of medical history, accompanied by a fine slide show, will be well satisfied with this book—if he or she can get over the hefty price tag. This book is designed to be read, not just admired, and is not in the same literary class as the typical coffee table book. ❑

Parade of the Dead: A U.S. Army Physician's Memoir of Imprisonment by the Japanese, 1942-1945

Bumgarner, John R, MD. Jefferson, NC: McFarland and Co., Inc., 1995, ISBN 0-7864-0101-1, $21.95

Reviewed by Leonard R. Prosnitz, MD, Professor and Chair, Department of Radiation Oncology, Duke University Medical Center

Summer 1995 marked the 50th anniversary of the dropping of the atomic bomb on Hiroshima and Nagasaki and the subsequent end of World War II. The media has given considerable attention to these events. In particular, debate has been renewed as to the wisdom of the use of the atomic bomb by the United States during that momentous summer 50 years ago.

In this context Dr. John Bumgarner has written *Parade of the Dead*, an account of his WW II experiences. Dr. Bumgarner practiced internal medicine and cardiology in Greensboro for approximately 30 years, retiring in the late 1980s. This modest volume was written in his retirement years when, at the urging of his family and friends, he decided to recount events that occurred well over a half century ago but which are indelibly stamped in his memory.

I use the word modest to describe this book advisedly. At 192 pages, it is relatively short, is easily read, and will certainly keep your attention. Dr. Bumgarner must have been quite a hero but comes across as a modest, unassuming gentleman of the old school. He rarely has an unkind word to say about anyone, including his Japanese captors. His own role as a medical officer in attempting to care for thousands of POWs under unimaginable conditions is downplayed. One only gets some sense of his abilities from the notes and cards that were presented to the author by his fellow prisoners at the time of liberation in 1945.

A brief chronology of Dr. Bumgarner's career is instructive. After graduating from the Medical College of Virginia in 1939 he, fatefully, joined the US Army Reserves during medical school, a decision that was to have immense consequences. After an internship and a brief stint in a pediatric residency as well as in private practice, Bumgarner found himself ordered to active duty on December 7, 1940. Shortly thereafter he was on his way to the Philippines. Ironically, he was called to active duty for a period of one year, with his tour of duty to expire on December 7, 1941.

Needless to say, Dr. Bumgarner did not make it home. When the Japanese overran the Philippines in spring 1942 he was captured along with thousands of other Americans. He spent the next three-and-a-half years in Japanese prison camps: two years in the Philippines and approximately one-and-a-half years in Japan itself. During this time he suffered from malnutrition, (indeed semi-starvation) losing approximately one-third of his body weight; malaria, dysentery, and probably a host of other unmentioned illnesses. He contracted pulmonary tuberculosis toward the end of his incarceration and wound up spending the next four years in US TB hospitals. It was his job, of course, to care for other sick prisoners and he had few if any tools to carry out this assignment. Just what it must have been like in Japanese prison camps may be deduced from the fact that the mortality rate was one out of three, compared to one out of 10 prisoners dying in German POW camps.

Dr. Bumgarner recounts this whole story in a remarkably modest, matter of fact way without a trace of anger or bitterness. On the negative side, you won't find much that is new and insightful about the POW experience during WW II. Dr. Bumgarner's tone somehow makes his experiences seem a bit less harsh than they must have been. Nonetheless, as a personal memoir and as a reminder of what some of our colleagues have endured in the service of our country, it is compelling.

Dr. Bumgarner, I hope you are having an enjoyable and fulfilling retirement. You deserve it. ❑

The Carolinas' Contribution to the Education of Dr. Richard Bright

William B. Blythe, MD

Who was Dr. Richard Bright and why does he merit our attention? Who and what shaped his being? What is the connection between the Carolinas and Richard Bright? My answers to these questions are the subject of this article.

Richard Bright was born in Bristol, England, in 1789—the year in which North Carolina ratified the US Constitution, George Washington was inaugurated as our first President, and the University of North Carolina was chartered. Doctor Bright's most productive years were spent as a physician at Guy's Hospital in London. Because of his work at Guy's, he can be thought of as the world's first nephrologist and the patron saint of renal wards.

There are, in my judgment, four major reasons to remember Richard Bright. First and foremost is Bright's *magnum opus*, titled "Reports of Medical Cases, Selected with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy,"[1] which he published in 1827 when he was 38 years old. The paper is an extensive study of 88 patients who had been personally cared for by Dr. Bright and upon whom he had performed autopsies. The patients had in common two findings: generalized edema (known then as dropsy) and albuminous urine. Bright described several diseases that caused this combination of findings, ranging from various forms of kidney disease to primary heart failure. Not only did Bright personally care for and conduct postmortem examinations on all the patients described, he actually drew all the illustrations for the paper, including the gross and microscopic anatomical drawings. Bright, aptly and beautifully describes his aim as a complete and scholarly physician:

> "The volume which I now offer to the Profession may be considered as the commencement of a work to be continued at irregular periods, receiving additions upon the same plan, more or less frequently, according to the various circumstances which must necessarily influence such an undertaking. It is my wish, in thus recording a number of cases, to render the labours of a large hospital more permanently useful, by bringing together such facts as seen to throw light upon each other; and it is more particularly my wish to preserve and explain by faithful Engravings the recent appearances of those morbid changes of stricture which have been connected with the symptoms or have influenced the treatment of the disease.... To connect accurate and faithful observation after death with symptoms displayed during life, must be in some degree to forward the objects of our noble art: and the more extensive the observation, and the more close the connection which can be traced, the more likely we are to discover the real analogy and dependence which exists, both between functional and organic disease, and between these, and the external symptoms which are alone submitted to our investigation during life."

This magnificent work serves as a paragon of how careful observation of patients in life and death can advance medical knowledge and practice. It is also the origin of the eponym, "Bright's Disease."

A second reason for remembering Bright is that he was the first to describe the relationship of blood pressure, the kidneys, and the heart in patients with hypertension. In a 1836 paper titled "Tabular View of the Morbid Appearances in 100 Cases Connected with Albuminous Urine,"[2] Bright wrote: "This naturally leads us to look for some less local cause for the unusual efforts to which the heart has been impelled: and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately; or, that it so affects the minute and capillary circulation, as to render greater action necessary to force the blood through the distant sub-divisions of the vascular system."

Dr. Bright's prescience is indeed remarkable. One hundred and fifty years later, we have evidence that 5%-10% of all cases of hypertension are probably caused by renal disease; that in some circumstances, hypertension is due to increased cardiac output, not increased peripheral resistance; and, finally, that the longer the course and the greater the severity of the renal disease, the greater the severity of the hypertension.

Dr. Blythe, guest editor of this issue, is Marion Covington Professor of Medicine, Department of Medicine, Division of Nephrology, UNC School of Medicine, Chapel Hill 27599.

The third reason that I think Bright should be remembered is contained in the 1843 paper titled "Account of Observations Made under Dr. Bright in Patients Whose Urine Was Albuminous"[3] by George H. Barlow and G.O. Rees. This paper contains the first description, certainly the first in English, of a medical ward being appropriated for the study of a single disease. Dr Bright's innovative unit might be regarded as the forerunner not only of clinical research wards but also of renal wards, reminding us that much of what we regard as new is not! Bright himself noted that this was "the first experiment which, as far as I know, has yet been made in this country to turn the ample resources in a hospital to the investigation of a particular disease, by bringing the patients labouring under it into one ward, properly arranged for observation. I fear that the attempt has been less effective than it might have been, and than, I think, others will hereafter prove; but if this is the case, the imperfection must fairly be ascribed to my want, not so much of zeal as of time, for carrying out, in its fullest extent, a most interesting experiment."[3]

The fourth reason for remembering Dr. Bright is that he was not a narrow pedant but rather a man with broad interests outside of medicine as well as inside. In addition to his deep involvement with the natural sciences, he was particularly interested in geology and geography. He wrote at least a book chapter[4] and a book concerning his travels in Iceland and Hungary.[5]

Bright's Path

Richard Bright was a consummate physician, a keen observer, a careful investigator, and a man of multifaceted expertise, a cultured and productive man. How did he get to be? Who and what shaped him? What were his upbringing and education like?

In my opinion, the answers to these questions begin with Henry Bright, our doctor's grandfather. Henry Bright, of yeoman stock, began his career at age 16 as apprentice to the prominent and wealthy Bristol merchant, Richard Meyler. Young Bright was sent to the West Indies, where Meyler had considerable holdings, for training in the business; when he returned to Bristol some time later, he had the wisdom to marry Richard Meyler's daughter. As a consequence of his marriage and his dedication to work, he became a man of considerable means and influence in Bristol.

He had one son, Richard, the father of Dr. Richard Bright. As a boy, the senior Richard was sent by his father to an unusual school, Warrington Academy, one of four in Britain run by the Dissenters, a group to which the Brights belonged. These schools, unlike other English schools, emphasized the sciences as well as the classics. Warrington Academy was a particularly exciting place because a large number of subjects were taught by a group of dedicated tutors, including the celebrated chemist, Joseph Priestley. Benjamin Franklin visited the Academy as did Erasmus Darwin, Joseph Banks (who had been on Captain Cook's voyage), and others. It is likely a consequence of this exciting and heady experience that throughout his life Richard Bright remained fascinated by things scientific, and passed this fascination on to his son.

After leaving Warrington, the senior Richard Bright turned reluctantly from science to the family business. In November 1777, his father's death left him a very wealthy man. From then until his own death, the elder Richard Bright "impress[ed] almost everyone he met." His lively mind responded to all kinds of stimuli and he had an astounding knowledge of diverse subjects. In 1782 he married and seven years later, Richard the younger was born, the fourth of five children.

In about 1790, Richard Bright moved his family to Ham Green, the marvelous country estate near Bristol that he inherited from his mother. This is where Richard the younger grew up, a wonderful spot for children with its lawns, gardens, orchards, and pastures. There was also a magnificent library, which was always open not only to the Bright children but to the children of their friends. The children were included in social events, no matter their age; they were led into the drawing room to meet the exceptional men and women whom Richard Bright gathered around him.

Richard Bright the younger was started in a local school when he was six years old. The school was run on the same liberal and scientific lines as the one his father had attended and it, too, had exciting people come to visit. Bright encouraged his offspring to take an inquiring interest in everything they did. The flowers that they picked had to be dissected, the fruits of trees identified, birds' habitats investigated. The encouragement of such behavior is probably the source of Dr. Bright's meticulous accuracy in making and recording observations in his practice and in the dissecting hall. As a schoolboy, young Richard (like many other scientists, famous and otherwise) became a collector who was encouraged and generously supported financially by his father. He established a museum at Ham Green for his collections of beetles, birds, birds' eggs, flies, rocks, and minerals.

Dr. Bright grew up in an upper-class, wide-open, stimulating, exciting, and secure environment. He was encouraged by his father *and* mother, and stimulated by his teachers and the almost constant stream of visitors in and out of Ham Green.

The Carolinas Connection

How did the Carolinas contribute to the education of Dr. Bright?: through the connection between North and South Carolina and Henry Bright's wealth. After all it was this wealth that supported the way of life and careers of both Richard Brights.

I first realized that there might be a connection while reading a book titled *Doctor Richard Bright (1789-1858)*[6] by Bright's descendant, Pamela Bright. In describing the property that Henry Bright left to his son, a single sentence read "Then there were the 'Old' bank in Small Street, trading connections in Jamaica *and North Carolina*, and the shipowning interests" (emphasis added).

I was interested in the idea that North Carolina might have been involved in Henry Bright's wealth. I wrote to the author of the book outlining my thoughts and, sometime later, received a most gracious reply from Miss Bright: "Alas, I have little to tell you at the moment about the trading connection between the Brights and North Carolina, but if you could wait until April 1985, I should be able to tell you more.

"Our rich Bright relations in Australia have asked me to go out there in January (paying my fare!) not only to meet the cousins but more important, to browse through the huge collection of papers. And as there are many letters with details of the Brights, their friends, agents, and other business contacts going back before 1700, including the commercial and legal activities between the Brights and their partners in Philadelphia and in South Carolina, I should be able to furnish you with some material. There are documents too about Henry Bright's increasing business in North Carolina, and the activities of Lowbridge Bright, his nephew, whom he sent to South Carolina in 1762.

"Perhaps you would rather write immediately to the archivist of Melbourne University, who has students helping him to sort out the collection of Bright papers."

So I wrote to Frank Strahan, the University archivist, and received shortly thereafter a reply that stated, among other things: "I have your letter of 3 June concerning your interest in the Bright Family trading connections with North Carolina. Esoteric though it might seem, the person best placed to comment is Dr. Kenneth Morgan, [at the] West London Institute of Higher Education...." A letter to Dr. Morgan at Lancaster House, Borough Road, Isleworth, Middlesex, England, brought this reply:

"I spent six weeks in Melbourne last year going through the Bright Family Papers in the university archives there. This was in connection with my forthcoming book on Bristol's Atlantic trade in the 18th century. The Bright Collection is uncatalogued but, with the aid of a research assistant, I was able to see most of the material. However, I do not recall anything at all relating to North Carolina. The Brights were mainly involved in West Indian trade and in running Jamaican sugar plantations—so far as their Atlantic commercial activities are concerned. They did trade with *South* Carolina, but not extensively. I think that Pamela Bright may have mistakenly written North Carolina instead of South Carolina in her book (which, in fairness, is a very good biography). This will no doubt disappoint you, but I can say quite categorically, having spent many hours researching the Brights, that you will not find anything on North Carolina in the Bright papers. If you are interested in the South Carolina trade of the Brights in the 1750s and 1760s, there are some references in the printed papers of Henry Laurens.... I am sorry that my reply is a negative one."

Dr. Morgan's letter certainly was discouraging. But the very fact that he was so certain that I would find no connection between the Brights and *North* Carolina represented a challenge. I decided to look further. With the help of Dr. H. G. Jones, then curator of the NC Collection in Wilson Library at UNC-Chapel Hill, I found the collection of Laurens' papers.[7] Henry Laurens was a wealthy merchant from Charleston, SC, and at one time, president of the Continental Congress. His papers consist—among other things—of letters to various merchants with whom he traded. There were several to Henry Bright or the Henry Bright Trading Company. The first, dated at Charles Town, September 27, 1755, and directed to "Henry Bright and Co," concerned bills for sale of rum and the current price of slaves. A footnote to this letter indicated that Henry Bright, Bristol merchant, was listed "as a slave merchant in 1750." It also indicated that "Between 1756 and 1759 Henry Bright and Richard Meyler had shares in the privateer Milford."

Subsequent letters from Laurens to Bright all concerned the price or sale of rice, "Negros," rum, indigo, and "logwood." Clearly, Henry Bright had trading interests in South Carolina and at least part of the interests was in the slave trade. But did he do business in North Carolina? The evidence is reasonably clear that he must have. In a letter from Laurens to Henry Bright dated May 17, 1756, Laurens writes "Your letter to Mr. Meyler [probably Jeremiah Meyler, Richard Meyler's brother who lived in Jamaica] shall go forward in a few days, also that to Newbern when we can find an opportunity which but rarely happens. We dare say that (those) you formerly sent through our hands went safe as we are as careful to whom we commit Letters as though it was Money or matters of like value. We are utter strangers to every one in that Quarter save only Mr. Henry Heylyn who went there from your City and must be better known to you than to ourselves. The best hand we know of in North Carolina to settle old Accounts is Lewis DeRossett, Esq., at Cape Fear who as one of the Council often goes to Newbern. If you should find it necessary to transmit your Accounts to him please to make use of our names and we dare say he will do you all the service in his power...."

Several things are clear from this letter: someone in North Carolina was indebted to Henry Bright and thus trading between Bright and someone in North Carolina must have occurred. Furthermore, Laurens appears to have had an aristocratic disdain for North Carolina.

Someone, probably Henry Bright, got in touch with Lewis DeRossett, because in a postscript to a letter to Henry Bright dated September 17, 1756, Laurens wrote, "I was at Newbern about 10 days ago on a special call of our Governor to meet there in Councell at which time I expected to deliver your friend Mr. Bright's Letter to Legardere and Williams to Mr. Williams himself but he was gone in the Country so that I was obligated to leave it with a friend who I desired to get his answer and when I return to Newbern at the meeting of Our Assembly in September next (If I do not get it before) shall press him myself. However am afraid if that Company is indebted to Mr. Bright he will not be able to get any thing for they have made over all their effects of every kind to a couple of gentlemen for the use of Mr. George Campbell of Liverpool and Mr. Legardere is gone off to the Southward or to the West Indies."

This letter is from Lewis DeRossett, Esquire, dated August 22, 1756.

No other letters in the Laurens papers concern North Carolina, and there are no references to Henry Bright in the DeRossett papers in the Southern Historical Collection. So it may be that trading with North Carolina was not extensive. It is clear, nevertheless, that trading in the Carolinas produced at least some of the wealth that enabled Dr. Richard Bright to become the person he was. Furthermore, and enhancing the immediacy, it is most likely that we are at present dialyzing and transplanting kidneys into patients with "Bright's Disease" who are descendants of slaves that Henry Bright brought to the Carolinas. ❑

Author's note: Much of the information about Richard Bright's early life is derived from Pamela Bright's book.[6]

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A Civil War Epidemic

Yellow Fever in Wilmington, North Carolina, 1862

Barry B. Kraus, MD

Today, AIDS (acquired immune deficiency syndrome) presents a fearsome challenge to physicians all over the world. Great effort has already been put into developing a cure or vaccine for the disease, but none has been found. Because it is so deadly, AIDS strikes fear in the general population. Two hundred years ago yellow fever produced the same fear and a frantic search for effective treatment. In America in the late 1700s, it spread with high mortality in epidemics that terrified the populace. The first yellow fever epidemic in the US occurred in Philadelphia in 1793, when 5,000 of a population of 55,000 died.[1] This was the most severe epidemic, but between 1793 and 1822 yellow fever struck almost every major port from Boston to New Orleans.

The germ theory of infection had not yet been proposed, and the roles of viruses and insect vectors were not known. Yellow fever was a strange and inexplicable disease. Two theories were proposed as to its origin: 1) that it was a "normal summer fever," transformed by meteorological and environmental conditions into a pestilence; and 2) that it was a disease brought from abroad. Physicians and laypeople were divided in support of one or the other of the theories. Each faction became increasingly vocal, the "sanitationists" lobbying to eliminate the filth and crowding common in port cities and the "contagionists" proposing strict quarantines to keep the disease away.[1]

Most physicians supported the sanitationist view. They knew that yellow fever usually began in crowded, filthy, portside housing and that even the most rigid measures of quarantine seemed only to slow the spread of disease, not eliminate it. Businesspeople, with much money at stake, favored cleaning up the cities rather than restricting the flow of potential customers by quarantine. These economic influences led to the formation of health committees and volunteer citizen groups in an effort to clean up. They were the beginnings of locally organized public health systems.

Nevertheless, yellow fever remained a scourge into the 19th century. During the four years of the Civil War, eight known epidemics occurred; New Orleans (twice), Key West, Charleston, and Hilton Head were among the cities affected.[2] In autumn 1862 it struck Wilmington, North Carolina. The course of events in Wilmington exemplified the epidemiology of the fever, for all the components necessary for its spread were present. It also revealed how conditions fostered by the Civil War predisposed all in the US to disease (remember, disease killed more soldiers than battle wounds), and how physicians of the time dealt with infection (see Williams article, page 548).

The War Comes to Wilmington

By late 1862 nearly every major southern port was either captured or blockaded by the Union. Wilmington became a major harbor by default. Union troops had captured much of the North Carolina coast by amphibious invasion during the Burnside Expedition,[3] and it was expected that Wilmington would soon be a target of Union attack. Because of the city's new importance to the Southern cause, the Confederate Army prepared a defense. Soldiers hastily built scaffolding and breastworks and tore up streets, leaving ditches everywhere. The rapid construction ruined the topography of the city, enlarging the many ponds that formed after torrential rains that had battered the coast during the summer.

According to Confederate surgeon William T. Wragg, the physician in charge at the time, the city was built on "sandy soil (which) rests upon a sublayer filled with water so that slight depressions result in the formation of ponds which stagnate under the vertical rays of a tropical sun."[4] The attention given to war preparations led to neglect of the sewage system. "The streets and yards were filled with heaps of filth and odure [sic], rotting in the sun. Disagreeable odors filled the air...physicians of the place stated that the season was unusually sickly...."[4]

By late 1862 most major land routes were held by the Union, and most ports blockaded. The Confederacy was in great need of supplies; it could not win a prolonged war, but would not yet give up. Blockade running became the best and most daring way to get supplies. Confederate ships most often carried goods from Cuba and the Bahamas.

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Yellow Fever Runs the Blockade

On August 6, 1862, the *Kate*—a steamer from Nassau—ran the blockade and arrived at the Wilmington wharf. This ship had made the trip once before, on July 29, but between the first and second visits, Nassau had been infected with yellow fever. Captain Lockwood of the *Kate* revealed that the ship *Flying Cloud*, which had left Havana in early July, brought the disease to Nassau.[5] Preparing for its run to Wilmington, the *Kate* docked in Nassau at the same time as the *Flying Cloud*. After leaving the Bahamas, the *Kate* was chased by a Federal steamer for days. The *Kate's* furnaces raged at full blast in an effort to outrun the enemy. The ship's engineer reported that temperatures reached 140° in the state rooms and up to 180° in the engine rooms. He also noted that very little wind prevailed and the air aboard was quite still. These events were reported in the *Confederate States Medical and Surgical Journal*, which was published by the Confederacy from January 1864 to February 1865 (interestingly, even after the South had clearly lost the war, it continued to publish this journal).

Just after the *Kate's* arrival, Dr. Anderson, a prominent town physician on whose reports surgeon Wragg based his accounts in the *Confederate Journal*, was called to attend the *Kate's* fireman O'Donohoe, a furnace room worker who had become sick on August 5, one day before the ship docked. After some 30 hours of intense headache, injected eyes, back pain, nausea, and vomiting, O'Donohoe died. Another crew member, Dennis Mitchel, developed the same symptoms and became the last crewman to die. Unfortunately for the residents of Wilmington, and although he was already ill when the ship arrived, Mitchel was placed, without quarantine, in the private home of the Campbell family located only 400 feet from Rouse Pond, the largest pond in the city. Mitchel died August 17; three to four days later the entire Campbell family died of the fever. This was the start of the epidemic.

Was the arrival of the *Kate* coincidental with the onset of the epidemic, or did the steamer actually bring yellow fever to Wilmington? The *Wilmington Daily Journal* explicitly reported that the *Kate* brought yellow fever to the city.[6] Surgeon Wragg wanted to "know whether any cases of fever with symptoms like those of yellow fever had occurred before the arrival of the *Kate*."[4] He discovered that six patients attended by one physician, Dr. Schonwald, had developed headache, back pain, high fever, nausea, and vomiting over three or four days between July 22 and August 5. Five of the six had black vomit, and four had died, but there was no certain proof of yellow fever.

Dr. Anderson saw several other cases in the two weeks following the deaths in the Campbell house. Three residents of a neighboring house were infected, and two died. On August 21, Chief Mate Egan of the *Kate* checked into the Palmetto Hotel; a few weeks later, the hotel proprietor and her son both died of yellow fever. On August 15, and again on August 28, civilians in areas far removed from the wharf died of the fever. The number of cases increased rapidly, and on September 14, 1862, physicians announced officially that the disease had become epidemic. Interestingly, the *Wilmington Daily Journal*, in its September 16 issue, stated, "...on the subject of yellow fever, we do not think that there is any likelihood of it becoming epidemic...."[7]

The Clinician's View

In describing symptoms of the fever, Dr. Wragg said "an acute chill signaled the onset. Pain in the head, back, loins, and limbs immediately followed, and very soon there was a feeling of soreness all over the abdomen, from the diaphragm to the pubis." Nausea and vomiting were common, the vomitus usually consisting of undigested food and bile. There was weakness, fatigue, and dizziness; tachycardia, facial flushing, and conjunctival injection. Headache and back pain became unbearable. The symptoms increased over 24-36 hours. Delirium, insomnia, and restlessness became marked. Dr. Wragg called this the "first stadium" of the fever.[8] Death rarely occurred during this stage.

After four to five days the pain ceased, giving the patient a false sense of well-being. Soon after, though, more severe vomiting occurred. The emesis first appeared clear, then mucoid, and finally the dreaded "black vomit" appeared. Then the patient could eat nothing. Restlessness, high fever, and delirium followed, all worse than before. This represented the "second stadium" of the fever and lasted two to three days. Death often occurred during this time.

In the third and final stadium, the vomitus became more copious. Anuria was common and signaled certain death. Jaundice and mucosal hemorrhage developed. Most patients in this stage died, but some recovered, although they often relapsed.

The Quest for a Cure

With the number of cases on the rise, the editors of the *Wilmington Daily Journal* took it upon themselves to propose an antidote that they had found in a Portuguese medical journal. A brisk fire was to be kindled in the fireplace at dawn and again at dusk in order to rarefy the "impregnated air, making it...less malignant...and producing those drafts of air...which are self-purifying." However, the editors were pessimistic about success, considering this "too plain a prescription to secure observance in more than one family in 10,000." In the September 15, 1862, edition, they proposed an alternative: sleeping with the doors open, to ensure a draft of air, and eating a hearty breakfast.[9] The very next day, the *Daily Journal* advised those who were out of town to stay away if possible. The editors wanted to prevent an epidemic, but they were too late.

By late September, the disease raged uncontrolled throughout Wilmington. On September 29, the day after the fever had claimed another 13 lives, the *Daily Journal* reported that, "it is possible that had the disease attracted more attention at first, its progress might have been stayed, or its limits confined, and many valuable lives saved. But of this we are not qualified to speak."[10] The *Journal* editors, too, had greatly underestimated the potential of the disease. During the week of September 27, 267 new cases were reported, of whom 82 died. The *Daily Journal* observed that this high mortality rate (30%) might not apply to the general population because a large proportion of deaths occurred among the elderly.

On October 6, 64 new cases occurred; by October 13, the temperature had dropped to 60° and the rains stopped. Nevertheless, 87 new cases were reported that day and 74 the next. At least 15 deaths occurred on each day. On October 15, the *Daily Journal* reported that the epidemic, being "no respecter of persons, has invaded alike the homes of the poor and the rich, the native and foreign-born citizen. It has spared neither age nor sex. It has turned aside no profession or calling."[11]

In the week preceding October 21, 431 new cases occurred. The *Daily Journal* reported that the mortality for that week was the highest yet. Knowing well that past epidemics of yellow fever ended with the onset of cold weather, the editors of the *Daily Journal* confidently predicted that the number of new cases would decrease "since this day closes the third week in October."[12] But by this time, the disease had brought the town to a standstill. Not only had hundreds become infected, but many more fled. Those who visited the evacuated areas felt the silence and desertion, but acknowledged that most who left town could have done no good by staying; they would either have died or have further strained the already thin supplies. Even the *Daily Journal* staff could not escape the epidemic; debility, death, and evacuation depleted its ranks so severely that it could publish only every other day for five weeks.

With the Frost, An End

A November frost limited the advance of the disease. The week of November 8 saw only 21 new cases and 21 deaths (some from relapses). By November 17, the epidemic had essentially ended. But in two months, one-third of the population (1,507 people) had been infected, and one-third of these had died. Nearly 10% of the population of Wilmington was gone. The high mortality rate was ascribed to inadequate nursing, poor cooking, lack of food, and depression from mass panic, but in actuality, this rate was typical for yellow fever (recall that 5,000 of 55,000 inhabitants of Philadelphia died during the 1793 epidemic.)

The *Wilmington Daily Journal* had proposed its remedies early in the epidemic. How did physicians there attempt to treat the disease? They knew that the diagnosis was yellow fever, but could not agree on one treatment regimen. The crude, empiric treatments reflected a lack of understanding of the epidemiology of the disease.

Dr. Wragg's remedy comprised large doses of quinine and calomel and urging the patient to drink warm tea. The patient was covered with blankets, the room closed, and cold water forbidden. Other surgeons used laxatives with or without calomel on the first day, and "gentle diaphoretics" with or without quinine on the second and third days.[8,13] Hot mustard compresses were used to relieve pain and croton oil liniment was used to reduce nausea and abdominal discomfort (but Dr. Wragg used cold compresses instead of hot mustard for the headache). Most surgeons used acid, alkaline, or neutral potions; carminatives, stimulants, and narcotics; and musk, ether, and creosote to allay gastrointestinal irritability. None worked. When symptoms were present, the disease was too advanced.

We now know that yellow fever results from viral infection transmitted by *Aedes aegypti*, a mosquito that breeds in water around human settlements. Endemic in the tropics, the virus can be imported by infected humans and perpetuated by mosquito-to-human transmission.[14] All of the environmental and social factors necessary to produce an epidemic were present in Wilmington at the time. Hot, humid weather simulated a tropical climate. The War led to rapid construction and severe rains produced large ponds, fertile grounds for mosquito reproduction. Poor sanitation and crowded living conditions also contributed. Into this environment the virus was introduced by the plague ship, *Kate*, which brought the disease from Nassau and Cuba where yellow fever was endemic.

Unfortunately, some tropical countries today remain so underdeveloped, the climate hot and humid, the living conditions so filthy and crowded that the disease persists in spite of large scale vaccination. The symptoms and course are identical to those experienced by the affected citizens of Wilmington in 1862. As recently as 1975, Bolivia reported 145 cases of yellow fever, with 50% mortality. Despite our knowledge of the germ theory of disease and an effective vaccine, the disease has proved difficult to contain. Fear and death are its legacy. ☐

Acknowledgment: The author thanks the late Dr. Robert W. Prichard for his guidance and encouragement.

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Multiple Hereditary Telangiectases with Recurring Hemorrhage

A Rare Disease of Clinical Interest to Osler

George T. Harrell, MD

My research into the decline of the Osler influence at the Duke University School of Medicine introduced me to his two papers on telangiectasia.[1] One was published while Osler was in Baltimore, the second after he was at Oxford. Osler's first paper was written in 1901 during his most active years in practice.[2] He begins by calling attention to his longstanding interest in angiomata and he describes three types: 1) the punctiform angioma, one of which appeared on his own finger, persisted for 10 years, then disappeared; 2) the nodular angioma; and 3) the spider angioma.[3] Osler's search of the literature uncovered a single report, by Rendu in 1896,[4] of a family with nosebleeds and a new form of small angiomata of the skin and mucous membranes. Osler then described, in considerable detail, the cases of three patients who had been hospitalized at Hopkins between 1896-1899. All had frequent nosebleeds since boyhood, with only occasional bleeding from other sites.

The first patient was a sailor whose family had seven members afflicted over three generations. The patient's almost daily nosebleeds began at age 10, but worsened at 37. His face, nose, tongue, lips, and ears had numerous telangiectases. Over the years he had become short of breath, could not work, and developed swelling of his feet and lower legs, the only patient in either of Osler's series with edema. His red blood cell count was 2.98 million and his hemoglobin only 15%-20% of normal. No therapy was described, but by discharge the edema had cleared. He was followed as an outpatient for three years, but no further laboratory or clinical data are reported.

The second patient, a brother of Case 1, suffered from severe nosebleeds with occasional bleeding from spots on the lips. Also a sailor, he was weak from anemia, which made work irregular. The telangiectases—on the lips, cheeks, nose, and ears—were fewer in number and less striking than in his brother. In the hospital he bled frequently from the nose and once vomited coffee-ground material before dying from cancer of the stomach. The only therapy mentioned was calcium chloride by mouth for three days which reduced his coagulation time from 11 minutes to four minutes. His autopsy was the only one performed on Osler's patients. There were prominent angiomata in the mucous membranes of the nose and stomach. No lesions were described in other internal organs. A single microscopic section (of the nasal septum) was described by the pathologist as showing dilated veins.

The third patient, chronologically the first seen, was a businessman whose nosebleeds started at age 10 while he was walking on his hands. They were less frequent between ages 18-25, but thereafter he began to bleed weekly from the nose, occasionally from spots on the lips, and developed severe anemia. (Interestingly, he recalled no family members who had been "bleeders," a fact that would appear to exclude him from the series by Osler's own definition of the condition.) On admission, his red cell count was 3.45 million and his hemoglobin, 38%. Angiomata disfigured his face and occurred on the tongue, chest, back, and abdomen. Following six nosebleeds after admission, his septum was cauterized, but during the next 24 hours he still bled 1,400 cc. After discharge he had less bleeding and felt the cauterization had saved his life. He learned to control bleeding by plugging his nose with cotton, and later invented a tamponade device consisting of a three-inch rubber fingerstall, inflated through a small tube. Osler kept in touch with the man for 10 years by mail and visits. The patient mentions treatment with "the iron and arsenic" for a few days after nosebleeds, but the name of the prescriber is not stated; in his "Remarks" at the end of the paper Osler does not mention therapy.

Osler's 1907 paper was presented at the first annual meet-

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ing of the Association of Physicians of Great Britain after he became Regius Professor of Medicine at Oxford. The journal in which the report appears was founded with Osler as editor.[5] He opens by defining telangiectasis as a dilatation of capillaries, but says the term is also used to include venules. There is a detailed description of conditions associated with the lesions, which may appear on any part of the skin. Close inspection with a hand lens will show some smaller vessels to be dilated.

The sixth condition in Osler's list was generalized acquired telangiectases with no family history of bleeding, of which he had reported a case.[6] The seventh and last was the multiple hereditary form with recurring hemorrhages which he had also reported.[3] Osler briefly reviews Cases 1 and 2 followed by a longer review of Case 3, including a 1907 visit when the spots were smaller but a recent nosebleed had been severe. (Osler's repeats the statement that no family members were afflicted, which would seem to place the patient in category six.)

Osler then adds a new family found under unusual circumstances that illustrate his legendary capability of instantly recognizing a disease. In 1904 he was called to New York to consult on a patient. When he met the doctor, he immediately recognized the telangiectases on his face, ears, and lips that stood out because he was pale from anemia. Daily nosebleeds had begun at age 10 and later the spots had bled. Five members of four generations of his family had the condition, which had been misdiagnosed as hemophilia, though none had bled from cuts. The doctor was seen again in 1907 after the more prominent spots had been touched with an electric needle which greatly improved his appearance. He had scarcely bled for a year and had been taking calcium lactate, which reduced his coagulation time from six to seven minutes to one minute. He was not anemic, had gained weight and strength, and felt better than he had in years.

Figure 1 of Plate 10 in Osler's paper was printed in color and showed the typical facial appearance. It is reproduced here in black and white (Figure 1, at right, top). Osler had borrowed the plate from Kelly, a Scottish physician.[7]

Osler's review of eight supposedly affected families culled from the literature recounts their relationships and sources of bleeding. The discussion is confusing since two families (I and II) cannot be confirmed to have the diagnosis from the reference cited. He gives Rendu[4] credit for reporting before 1901 the only cases similar to his own (family III). He accepted as genuine, families IV, V, VI, and family VII (Cases 1 and 2 from his first paper, but he omits his Case 3 because no members of the family were afflicted). Family VIII is the doctor reported in the paper.

There is a long discussion of the serious character of the bleeding, especially spontaneous nosebleeds without trauma, leading to chronic anemia. He mentions cases of bleeding from skin lesions in other diseases, but patients with hereditary telangiectasia bleed rarely from the skin lesions; eating may cause bleeding from lips, tongue, and gums. Only one death from hemorrhage was found in the literature, but the site is not stated.

The paper ends with a short discussion of treatment. Careful cauterization of the stellate veins of the nostrils should be considered and was thought to be helpful in one case. The doctor's appearance had been improved by electric cauterization of face and lip lesions. Calcium chloride was used in one case with no benefit, but in another a prolonged coagulation time returned to normal. Large doses of calcium lactate over a long time had reduced the doctor's coagulation time, and was recommended in all cases. It is surprising that no mention is made of iron since Osler had used Blaud's pills at Johns Hopkins to treat young girls with chlorosis.[2]

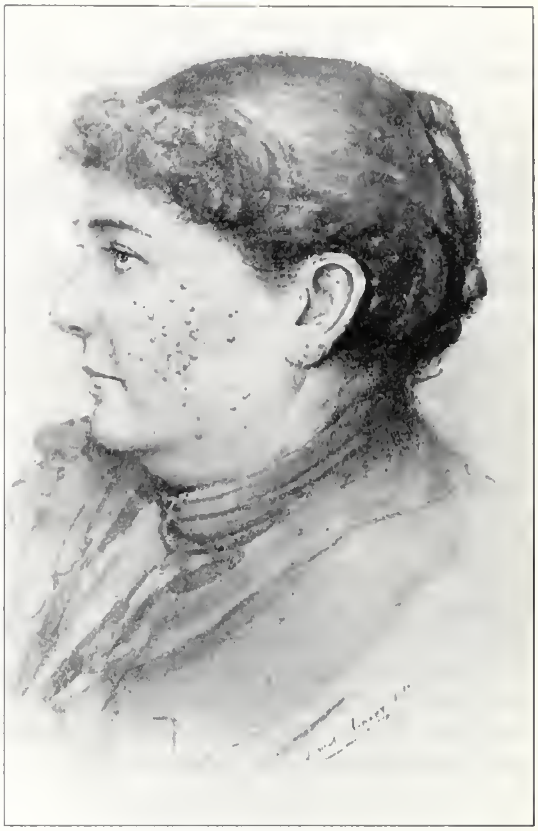

Fig 1: Typical facial lesions. Originally published by Kelly,[7] later by Osler[5] and Hanes.[8]

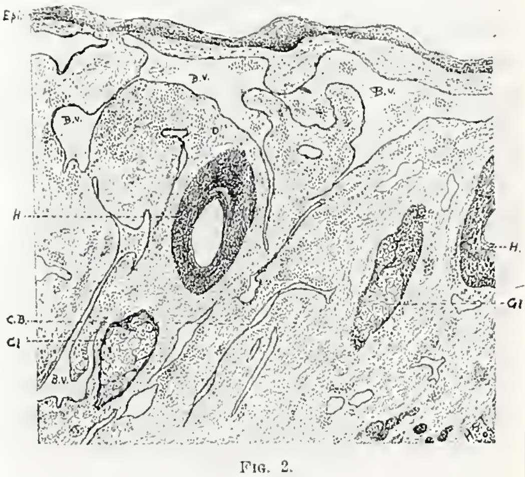

Fig. 2.

B. V. = Blood Vessels.
C. B. = Collapsed Blood Vessels.
Epi. = Epidermis.
H. = Sheath of Hair Root.
Gl. = Gland of Hair Follicle.

Fig 2: Drawing of a microscopic slide of a biopsy from a cheek telangiectasis of an affected man. Originally published by Hanes.[8]

The Contribution of Hanes

Dr. Frederic M. Hanes, Professor and Chairman of the Department of Medicine at Duke from 1933 until his death in 1946, was a first-year student at Hopkins during Osler's last year there.[8] There is no evidence of classroom or other contact between the two. Osler was a microscopist from his preparatory school years and made slides of his autopsies in Montreal, but he does not mention that he conducted any review of the slides made in one of his cases. Hanes, a resident in pathology in 1909, was following Osler's path to clinical excellence via pathology. He recognized that published anatomic studies of telangiectases were deficient; then opportunity presented itself to review eight typical cases from two unrelated families. A biopsy from the cheek of one man (Figure 2, at left, bottom) showed obliteration of papillae and absence of undulations of stratum germinatum of the epidermis. The underlying dilated blood vessels were lined by a single layer of epithelium. Sections stained by various methods showed no protective muscular or elastic tissue in the walls of the dilated vessels of the corium, but the normal arrangement was found in the less dilated ones of the subcutaneous fat. The drawing of Hanes' slide is the only illustration in the literature to that time.

Hanes reviewed in detail all previously reported cases and credited Osler for calling attention to the disease in the 1901 paper. Hanes suggested the name "hereditary hemorrhagic telangiectasia," but the eponymic Rendu, Osler, Weber disease (or variations in that sequence) held sway for years.[9]

Comment

Osler's papers on telangiectasia follow his pattern of accurate clinical description of diseases seen in the practice of medicine. In this instance, he emphasized the: 1) skin and mucous membrane involvement; 2) familial inheritance in only some members; and 3) severe hemorrhages, especially nosebleeds. The immediate impact of his reports, even mention in his textbook, was short lived, and literature on the subject is scant for the next 70 years. Others did record lesions in a number of internal organs; Osler had reported only one, in the stomach.

Osler, known as a charismatic, superb teacher and author of a landmark textbook, insisted that drugs be proven effective before he recommended their use. This may explain the complete absence of discussion of treatment in the first paper and the recommendation only of calcium lactate to reduce coagulation time in the second. Osler omits even the proven use of iron for anemia. Similar omissions from his text led critics to accuse him of therapeutic nihilism. No transfusions were given because they came into general use only after 1910. The edema in Osler's case with dyspnea and weakness might have indicated borderline cardiac failure, but no digitalis is mentioned in treatment. Vitamins were unknown then, but it is now recognized that prolonged severe anemia may deplete myocardial B_{12} and precipitate failure. Good hospital diet alone could have corrected it in this patient.

At Oxford, the absence of a clinical medical school reduced Osler's teaching to open rounds at the Radcliffe Infirmary and occasional lectures. He was considered more a philosopher, historian, and humanist though he encouraged the appointment of scientists to university departments. Neither Osler nor Hanes wrote on the subject of telangiectasia after 1909. But as scientific techniques not available in 1909 have been introduced, various aspects of the disease have been explored. Electron microscopy has failed to define a lesion in the defective tissue described by Hanes. Epidemiologic studies put the estimated frequency of the condition at one to two per 100,000. The genetics of transmission show the disease to be an autosomal dominant vascular dysplasia.[9] Recently the chromosome involved has been identified, although the exact location of the gene has not (Douglas A. Marchuk, PhD, a participant and author in the chromosomal study, is now an assistant professor and research geneticist at Duke).

Garrod, Osler's successor as Regius Professor, changed emphasis from clinical rounds to a scientific consideration of the biochemical nature of individual manifestations of heritable diseases.[10] Though not widely accepted at the time, the subsequent development of molecular biology has demonstrated that changes in DNA lie behind disorders such as hereditary telangiectasia. Such studies underscore the value of accurate clinical observations of disease even when the underlying mechanism cannot be explained. Ultimately after many years, as in telangiectasia, highly trained investigators using new methods may establish the scientific base. ❑

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The History of Visceral Larva Migrans at the Bowman Gray School of Medicine

John P. Bent, III, MD

Visceral larva migrans (VLM) is a systemic parasitic infection of children throughout the world. The classical syndrome—fever, cough, wheezing, hepatomegaly, and anemia—is usually caused by eating dirt containing eggs of the nematode worm, *Toxocara canis*. *T. canis* reproduces in the lungs and intestines of dogs and infective eggs pass into the soil via their stool. The prevalence of toxocariasis in puppies may approach 100%.[1] Less commonly, VLM is caused by other parasites, such as the ascarid worms of cats, rabbits, or raccoons.

Human infection leads to parasitic invasion of the liver and other organs. In rare instances the larvae migrate into the eye, causing ocular larva migrans (OLM). The inflammatory response of involved organs varies from subclinical to severe. Treatment consists of antiparasitic agents, anti-inflammatory steroids, and supportive therapy as needed. The prognosis for recovery is good, although death due to pulmonary, cardiac, and central nervous system involvement has been described. OLM may cause blindness and has sometimes led to unnecessary orbital enucleation when misdiagnosed as retinoblastoma. Fortunately, we have learned much about this disease in the past 40 years, in part due to pioneering work at the Bowman Gray School of Medicine in Winston-Salem.

The Beginnings in New Orleans

The history of VLM begins over 40 years ago when five physicians at Tulane University School of Medicine's Ochsner Clinic identified three cases of parasitic infection with associated eosinophilia. The chairman of the Department of Pediatrics opposed the use of eponyms, and so the syndrome was called visceral larva migrans[2] by analogy to another parasitic infection (cutaneous larva migrans), instead of naming it for its discovers. When Dr. John Lafferty, a member of the Tulane team, moved to North Carolina, he found that curiosity and enthusiasm about VLM had spread to the Bowman Gray School of Medicine. The research there was spearheaded by Dr. Carolyn Huntley, who spent many years investigating this newly recognized disorder. Huntley successfully perfected an enzyme-linked immunosorbent assay (ELISA) for serodiagnosis of VLM, a major contribution to accurate diagnosis of the disease.

But the story begins with Dr. Lafferty in New Orleans. He obtained his medical education at Tulane from 1942-1946, and completed his pediatric training at New Orleans' Charity Hospital in 1950, despite an interruption for military service. In 1951 he was pediatric fellow at the Ochsner Clinic, and participated in a one-month exchange residency at Bowman Gray.

In late 1950 and early 1951 the initial developments with VLM took place: A 26-month-old girl came to the Ochsner Clinic with a chest roentgenograph that looked like miliary tuberculosis. She was admitted to Charity Hospital and found to have a leukocytosis and eosinophilia (65%), hepatomegaly, fever, anemia, and respiratory symptoms. The residents working under Lafferty suggested that the symptoms resembled those recently reported by Dr. Robert Mercer[3] and ascribed to an *Ascaris lumbricoides* toxin. Lafferty presented the information to P.C. Beaver, Ochsner's parasitologist, who thought that Mercer was correct in ascribing the chronic eosinophilia and granulomatous lesions of the liver to parasite infestation, but wrong in attributing them to *A. lumbricoides* rather than *T. canis*. Beaver's team then reported three cases of suspected VLM (including Lafferty's patient) and described the characteristic symptoms.[2]

Beaver and his colleagues outlined a rudimentary pathogenesis which is still largely accepted as correct today.* Beaver was actually able to isolate *T. canis* larvae from the backyard of the patient seen by Lafferty. To further support their case, Lafferty, Beaver, and their collaborators injected *T. canis* eggs

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into mice and detected larval infection within 11 days.[2] At the same time, Beaver and Dr. Michael Smith undertook an experiment of dubious ethical proportions. Two mentally retarded orphans, aged two and three, were fed 200 *T. canis* eggs. Within one month both developed massive eosinophilia without other symptoms; the investigators stopped short of performing a liver biopsy to confirm *Toxocara* infection.[4] Although contrary to modern research principles and ethical standards, the experiments supported a connection between *T. canis* ingestion and asymptomatic eosinophilia.

The Story Continues at Bowman Gray

A year after completing the VLM study, Lafferty left New Orleans for private practice in Hickory, NC, where he worked until retiring in 1978. During his first 15 years in Hickory, he spent two days per month in rounds at Bowman Gray, where he often came into contact with Dr. Huntley, a forerunner of the next generation of VLM researchers. Curiously, the fact that both Lafferty and Huntley worked in the same department appears only coincidentally related to VLM; Dr. Huntley's interest in VLM did not develop from her interaction with Lafferty, but rather sprang from her experience with a fatal case of VLM at Bowman Gray.

Since the important manifestations and etiology of the disease had already been defined by 1961,[5] Dr. Huntley concentrated on serologic techniques to improve diagnosis. In the early 1960s a diagnosis of VLM (in the absence of liver biopsy) was a presumption based on the presence of eosinophilia (greater than 30%) in children who ate dirt.[5] Because the life cycle of *T. canis* in humans stops at the larval stage, no eggs appear in the feces of infected humans and studies of stool cannot provide a diagnosis.[6] To overcome this diagnostic quandary, Huntley teamed with Dr. Alvin Moreland in 1963 to use gel diffusion studies in VLM diagnosis. They prepared antigen extracts of both *Toxocara* and *Ascaris* worms, and injected the preparations into rabbits to stimulate antibody production.[7] Serum from the rabbit and from three children with suspected VLM were diffused against the two antigens. The results showed that the parasitic extract preparations had multiple antigens capable of precipitating rabbit antibodies; and that two of the three children had serum precipitins to at least one of the antigen extracts.

This set the stage for one of Dr. Huntley's largest projects on VLM. In 1965 she, Dr. Magarita Costa from the University of Puerto Rico School of Medicine, and Anne Lyerly from Bowman Gray evaluated 39 children from Puerto Rico and 12 from North Carolina with VLM.[8] Their large data base demonstrated that, in addition to *Toxocara*, *Ascaris suis* and *Capillaria hepatica* occasionally caused the VLM syndrome. They found that the disease tended to occur in children aged one to three years, and was twice as common in boys as in girls (apparently, a reflection of a taste for dirt!). Efforts to find antigen or antibodies in urine, and to isolate *T. canis* from blood and feces were unsuccessful. They did note that serum levels of IgG and IgM were markedly increased and serum albumin decreased in affected children compared to a 30-child control group; IgA levels were unchanged. The increased levels of immunoglobulins G and M became an important criterion supporting (although not confirming) a diagnosis of VLM.

An important finding of the Puerto Rico study came through the continuation of Drs. Huntley and Moreland's gel diffusion experiments. Huntley found that 22% of the VLM patients tested positive to *T. canis* and 19% to *A. lumbricoides*, compared to only one of the 30 control subjects (the positive control was the child of a kennel owner). Furthermore, 39% of the VLM patients and none of the controls had elevated anti-A or anti-B isohemaglutinin titers. None of 54 children with various illnesses (including six with intestinal ascariasis) had precipitating antibodies to A or B blood group substances. Dr. Huntley had described a characteristic gel diffusion reactivity that distinguished serum from some VLM patients from both sick and healthy children without VLM. Those VLM sera that gave positive gel diffusion results tended to be from children with the highest Ig levels (14 years later it had become clear that many cases of systemic VLM are not detected by gel diffusion, in fact less than 10% of cases are properly identified[9]). Nevertheless, the serologic testing introduced by Dr. Huntley and her colleagues, although it lacked sensitivity, did establish its potential diagnostic usefulness.

Dr. Huntley next used latex agglutination to study the presence or absence of anti-IgG globulins in VLM. Twenty-six of 59 VLM patients had positive titers compared to only two of 93 healthy controls.[10] The presence of the agglutination factor did not correlate with the severity of the VLM symptoms, but Dr. Huntley and her co-investigators were more interested in showing that VLM could produce rheumatoid factor-like Igs than in diagnostic techniques. And it was a new and interesting finding that such young children (average age of two years) could produce a rheumatoid-like factor.

In the late 1960s Dr. Huntley and Ms. Lyerly became interested in the high incidence of erythroblastosis in tropical countries with endemic parasitic disease.[11] Whereas the anti-IgG globulins found in VLM were IgM, the erythroblastosis isohemaglutins were IgG. Studies of 15 VLM patients, 19 schistosomiasis patients, 25 healthy adults, and 18 healthy children showed that VLM patients had the highest percentage of positive isohemaglutination tests (66%, 36%, 4%, and 6%, respectively). This demonstrated that parasitic infections, especially VLM, enhanced the development of IgGs directed against the host's own red blood cells.

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*Children ingest dirt containing eggs of *T. canis* or *T. cati*. The eggs hatch in the intestine and the larvae migrate into tissue, particularly the liver. The human host provides unfavorable conditions for the larval nematode, which eventually dies. Beaver et al hypothesized that the clinical symptoms of eosinophilia, pneumonitis, and hepatomegaly were due to direct tissue invasion, with the severity of symptoms related to the number of larvae present and the allergic state of the infected individual.

On the Trail of a Diagnostic Test

In 1975, Dr. Huntley teamed with Dr. Roy Patterson of Northwestern University Medical School to investigate the use of radioimmunoassay (RIA) techniques.[12] Using *A. suum* antigen (which produced more positive precipitin reactions than *T. canis* antigen), they showed that serum IgM and IgG of 10 VLM patients reacted at levels more than two standard deviations above the mean. They concluded that RIA could "provide a superior method of diagnosis" by verifying the existence of immunoglobulins against a VLM pathogen.[12]

One year later Drs. Huntley and Patterson collaborated again to support their argument for RIA testing. They reported the case of a child with dramatically elevated levels of IgG, IgM, and IgE specific for *A. suum* antigen;[13] the levels declined appreciably within four weeks of the acute phase. The Ig levels detected by RIA were reproducible in this patient and 10 others with VLM. The ability of RIA to provide diagnostic results with confidence became a crucial step in the progress toward mastering VLM serology.

The diagnostic test currently used for diagnosing VLM, the ELISA test, was Dr. Huntley's last and most valuable contribution to VLM research. She and Ms. Lyerly, with assistance from the Centers for Disease Control and Prevention, used an antigen extract of gravid *A. suum* worms. With time they developed the preparation to such specificity that it reacted only with serum of *T. canis*-infected, not *A. suum*-infected rabbits. Nor was there any cross-reaction with A or B blood group antigens. The ELISA test had several advantages over RIA: the reagents were more stable, the procedure was less expensive, and it posed no risk to lab technicians. The test was specific enough to avoid cross-reaction with other parasite or human blood group antigens and it was sensitive enough to identify the characteristic immunologic changes found in OLM. The ELISA test, approved for regular use in 1979, has been an especially significant development, since it can prevent unnecessary liver biopsies or enucleation of the eye.

Before her death more than a decade ago, Dr. Huntley brought the diagnosis of VLM to its present level. Current literature reports a sensitivity of 78% and a specificity of 92% for the VLM ELISA (the figures are somewhat lower for OLM).[14] Now that the diagnosis of VLM can be made with greater confidence, research has shifted to improving parasiticidal therapy.[15] This progress is being followed by two Bowman Gray faculty members, Dr. Doris Kelsey (Department of Pediatrics), and Dr. David Bass (Department of Medicine, Section on Pulmonary Medicine), both regional authorities on VLM. Fortunately, thanks to 44 years of investigation, most of the pieces of the puzzle are already in place. ❑

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"History and the Human Experience"

If the science of medicine is not to be lowered to the rank of a mere mechanical profession it must preoccupy itself with its history. The pursuit of the development of the human mind; this is the role of the historian. —*Emile Littre*

Medicine, like all knowledge, has a past as well as a present and a future, and…in that past is the indispensable soil out of which improvement must grow. —*Alfred Stille*

The history of [medicine] claims, therefore, a very special interest in the history of the development of the human mind. None other is, perhaps, more fitted to show that a true criticism of the sources of cognition is also practically an exceedingly important object of true philosophy. —*Hermann von Helmholtz*

In the continual remembrance of a glorious past individuals and nations find their noblest inspiration. —*Sir William Osler*

As no man can say who it was that first invented the use of clothes and houses against the inclemency of the weather, so also can no investigator point out the origin of Medicine—mysterious as the source of the Nile. There has never been a time when it was not. —*Thomas Sydenham*

To understand a science it is necessary to know its history. —*Auguste Comte*

As Cicero put it, "to remain ignorant of things that happened before you were born is to remain a child…[for] what is a human life worth unless it is incorporated into the lives of one's ancestors and set in a historical context?" By "ancestors" Cicero did not mean your mother's aunt.
—*Neil Postman,* Teaching as a Conserving Activity

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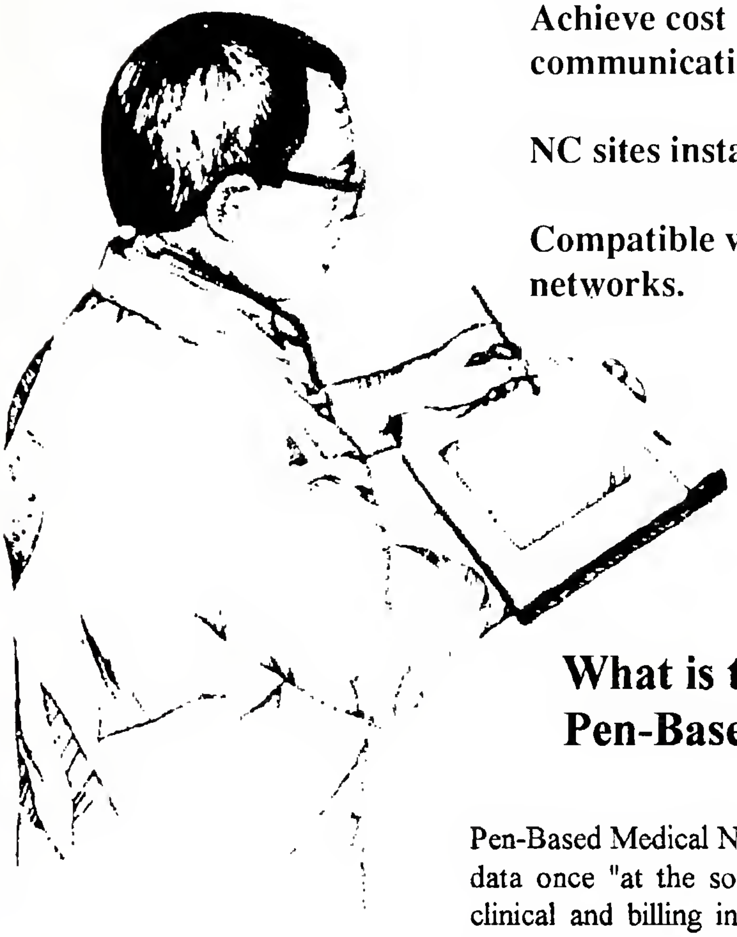

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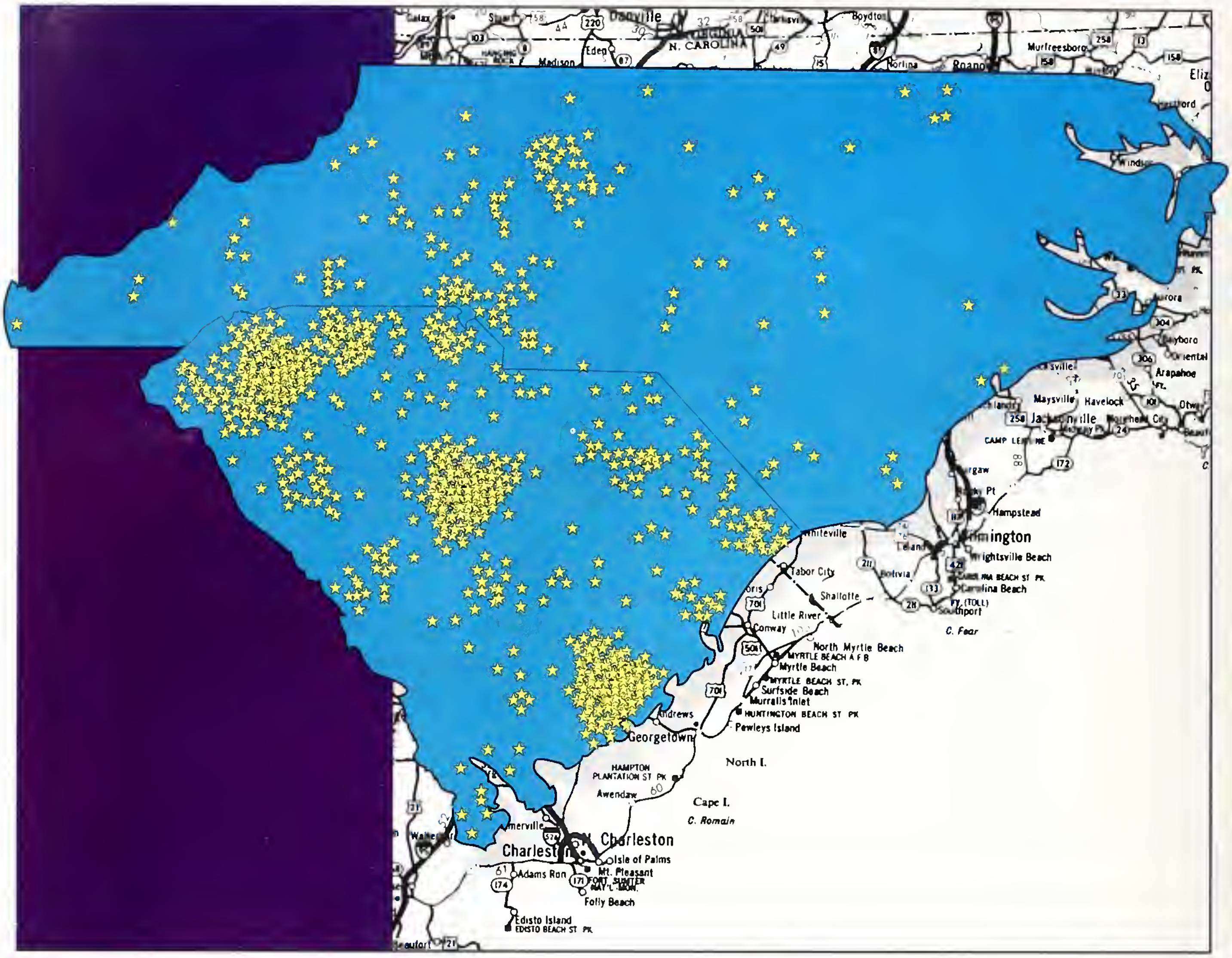

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North Carolina Medical Journal

For Doctors and their Patients

Case Reports:
Megaloblastic Cytopenia in AIDS Patient,
Massive Gastrointestinal Hemorrhage

Disease Management:
Anti-Inflammatory Treatment
of Asthma in Children

Toxic Encounters:
Hydrogen Peroxide Poisoning

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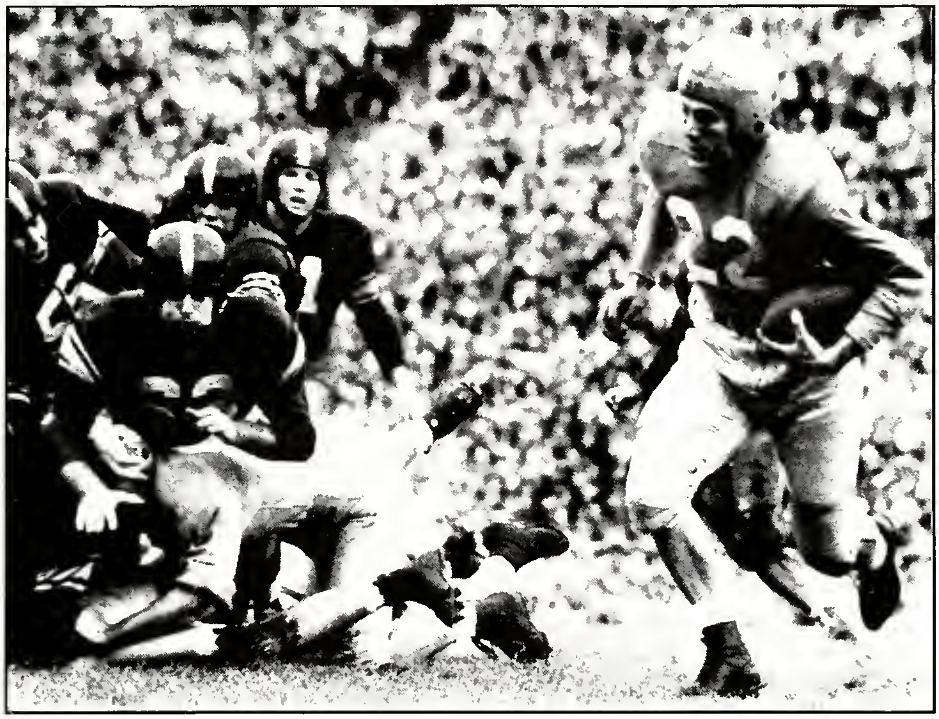

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For Doctors and their Patients

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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor

Medical Futility and Nursing Care

To the Editor:

The September *Journal* devoted to medical futility came across my desk in a timely fashion since I had just been appointed to the National League of Nursing's task force on the nursing care of patients who have chosen to forego or discontinue life-sustaining technology. The publication's focus on ethical issues will be most useful to me and to our committee as we discuss the concerns that patients, their families, and nurses have regarding medical futility.

Thanks to all the authors who contributed to this issue. It represents a sophisticated and pragmatic means for discussion and dissemination of useful health-related matters among health care professionals.

Carolyn Cooper, RN, PhD
Clinical Assistant Professor
UNC School of Nursing
CB# 7460, Carrington Hall
Chapel Hill, NC 27599-7460

Educating Medical Students

To the Editor:

I am responsible for teaching a segment on medical ethics and medical-legal issues to medical students in a special program. I think the September *North Carolina Medical Journal* would be helpful in our discussion of these issues. I would like to order 16 copies to distribute to the students in the class.

Paul B. Solnick, Attorney at Law
527 Plymouth Road, Suite 419
Plymouth Meeting, PA 19462-1641

From the Editor:

Limited copies of the September issue are available for $5 each (plus 6% sales tax). Call the Medical Society at 800/722-1350 (or 919/833-3836) for information.

Doctors Should Note Reason for Prescription

To the Editor:

I urge physicians to heed an important policy recently established by the North Carolina Medical Society that advises physicians to include the indicated use of the prescribed drug on the signa potion of a prescription, unless circumstances warrant this inappropriate.

Pharmacists are required to provide specific information for patients regarding possible side effects, risks, benefits, and interactions of prescription medications, yet the clinical indication for use greatly influences the specific education needed. Patients and family members often forget why an individual medication is prescribed. Since many medicines can be used for multiple indications, specifying use on the signa portion of the prescription will reduce any confusion about why a medicine was prescribed.

Anything listed on the signa portion of the prescription is required by law to be included on the label. If physicians routinely include a drug's indicated use in this section, we can help prevent patients from making medication errors, help pharmacists better focus their patient education activities, and help physicians across North Carolina provide better care for their patients.

Adam O. Goldstein, MD
Chair, NCMS Substance Abuse Committee
Clinical Assistant Professor
UNC Department of Family Medicine
CB# 7595, Manning Drive
Chapel Hill, NC 27599-7595

Journal Article Figures in Book

To the Editor:

I would like to use several figures from Dr. Malcolm Tyor's article in the *North Carolina Medical Journal* titled, "Whipple's Disease: The Duke Connection" (NC Med J 1994; 55:237-40). I would like to use them for a chapter on Whipple's disease in the *Textbook of Pediatric Infectious Disease*, published by W.B. Saunders.

Mark A. Gilger, MD
Assistant Professor
Baylor College of Medicine
Department of Pediatrics
Section of Gastroenterology
Texas Medical Center
Houston, TX 77030

From the Editor:

We are pleased to have Dr. Gilger use the figures on Whipple's disease in his chapter.

A Physician's Anthology

To the Editor:

In the August *Journal*, I suggested compiling an anthology of literature that would be worthwhile reading for medical students and practicing physicians. Here's a starting list, off the top of my head. I'm sure *Journal* readers could come up with many more: *A Day's Wait* by Ernest Hemingway, *The Death of Ivan Ilych* by Leo Tolstoy, *Silent Snow, Secret Snow* by Conrad Aiken, and *The Use of Force* by William Carlos Williams.

Charles Blackburn, Jr.
Development Communications Manager
Sigma Xi, The Scientific Research Society
99 Alexander Drive, P.O. Box 13975
Research Triangle Park, NC 27709

From the Editor:

Readers with suggestions for such an anthology can fax selections to the *Journal* at: 919/286-9219.

Planning the Future of Primary Care in NC

To the Editor:

Two articles that appeared in the August *North Carolina Medical Journal* speak to especially timely topics: "Primary Care Physicians for North Carolina. How Many are Needed? Where Will They Come From? Can the Need Be Met?" (NC Med J 1995;56:352-8) and "A Graduate Survey of the Relevance of a Family Practice Residency Curriculum" (NC Med J 1995;56:360-3). I feel that a number factors related to the availability of family physicians need to be considered if we are to have an accurate accounting of our physician manpower needs. I believe that we should consider the following points in looking at this issue:

1) The availability of primary care physicians will depend on the extent to which they are allowed to care for their patients. Our need for primary care physicians will be much greater than estimated if primary care physicians are to do treadmill tests, perform minor surgery, manage uncomplicated fractures, biopsy breasts, endoscope esophagi and colons (with polypectomy, of course), provide hospital intensive care for their patients, etc.

2) A vigorous, intensive residency will be required to train such generalists, one requiring close, cooperative, working relationships with "limited-scope" practitioners. On the other hand, if primary care physicians are relegated to the role of mere gatekeepers/police officers, directing patients to this limited-scope specialist or that, then we will need many fewer primary care physicians.

3) The Medicare reimbursement structure greatly affects the availability of primary care physicians. Since primary care physicians and sub-specialists are reimbursed on different scales for performing the same procedures, many primary care doctors choose not to see Medicare patients. If these reimbursement issues can be resolved and a more equitable standard adopted, Medicare patients will have easier access to primary care physicians, thus increasing the need for these front-line health care providers.

4) The medical malpractice arena must change to encourage primary care physicians to take on new procedures and services. The environment needs to be supportive and nurturing, not hostile and combative. Academic physicians, as well as displaced practicing [specialist] physicians, will need to be sensitive to these issues.

I compliment the *Journal* for publishing these articles. They indicate an interest in obtaining an accurate picture of our state's present and future physician manpower needs. However, I urge you not to let it end here. These issues demand the attention and efforts of us all. They are much too important to be left solely to the economic forces of managed care companies. We need to reconfigure the "house of medicine" to provide an appropriate division of work and the necessary types and numbers of physicians to deliver top-quality medicine to all the citizens of this state.

Gary O. Bean, MD, President
North Carolina Academy of Family Physicians, Inc.
4816 Six Forks Road, P. O. Box 18469
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Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format, and at least one hard copy of the text. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

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A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. *Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere.* Decisions to publish or not are made by the editors, advised by the peer reviewers.

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The Fall of the House of Medicine?

Francis A. Neelon, MD

> "I had been passing alone, on horseback, through a singularly dreary tract of country; and at length found myself, as the shades of evening drew on, within view of the melancholy House of Usher. I know not how it was—but, with the first glimpse of the building, a sense of insufferable gloom pervaded my spirit.... I looked upon the scene before me—upon the mere house, and the simple landscape features of the domain—upon the bleak walls—upon the vacant eye-like windows—upon a few rank sedges—and upon the white trunks of decayed trees—with an utter depression of soul.... There was an iciness, a sinking, a sickening of the heart—an unredeemed dreariness of thought which no goading of the imagination could torture into aught of the sublime. What was it—I paused to think—what was it that so unnerved me in the contemplation of the House of Usher."
>
> —Edgar Allan Poe, *The Fall of the House of Usher*

Hard times today in the House of Medicine. Doctors have been herded like sheep into corrals and professional holding-pens that we would have deemed uninhabitable just a few years ago. We have relinquished all but a hollow semblance of leadership. We have turned the prerogatives we once exercised on behalf of patients over to a narrow bunch of business-oriented newspeakers who, in the name of money-saving, have transformed the care of the patient into mere treatment of the disease, and sometimes minimal treatment at that.

Of course, there clearly were problems—runaway costs, the easy temptation to inflate profits, an excess of procedures and of pills. But it seems to me and to other doctors of my ilk that the problems of the old medicine at least were the result of aiming in the right direction, toward more and better care, toward a humane and tempered interaction with the sick who came to us. Now doctors are cajoled, coerced, co-opted into believing that "less is more"—*always*. Less of everything, but especially less time for the patient, and fewer choices for patients and doctors. Our practices are monitored and put to the test of utility; they are presumed wanting, if not "proven" to be valuable. The root of all these changes is money. Although most of us support parsimony, in our national race to "control costs" we have let the control of care slip from the hands of doctors. The ripple effects of this transfer of power and authority run wide and deep.

The ripples are lapping ominously against the foundations of the North Carolina Medical Society and the *North Carolina Medical Journal*. The Medical Society is feeling the financial pinch that comes from having fewer dues-paying members. Physicians who become salaried employees of health maintenance organizations or other corporate medical care ventures may find many fewer incentives to unite with their colleagues in a professional organization. They are especially not likely to join (or re-join) a society made up not of specialty practitioners but of *all* doctors, doctors bound together not by mere technical interest but by a shared vision of what it means to be above all a disciple of Hippocrates. Salaried doctors often do not need to purchase individual malpractice insurance, to equip an office, to obtain the services of a collection agency. Their employers may stop underwriting their membership dues for the Medical Society. Employee doctors become more concerned with the productivity and through-put demands of their bosses than with a seemingly distant debate about the legal and economic climate that surrounds the present and future practice of medicine. Academic physicians have been, in general, resistant to joining the Medical Society. Similarly, employment by a managed care company diminishes the perceived benefits of membership for employee doctors. When fewer doctors join, the Medical Society has less funds to support its activities. It has to look for ways to cut back expenditures. One target of expenditure cutting is the *Journal*.

The *Journal* is adversely affected in another way. The advent of managed care has led, indirectly, to a drastic decline in the advertising directed at doctors. Drug companies and

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equipment suppliers realize that decisions about choice of medications and services are less and less the province of individual doctors and more and more the responsibility of "care managers." Drug and equipment companies have learned to direct their interest and their advertising monies away from doctors. The net result is less money coming in—to the Society, and to the *Journal*.

Having less money available means that the Society must be vigilant about where it spends its available funds. Because advertising income can no longer be counted on until it is in hand, the Executive Council has decided to put a firm cap on the yearly amount of money budgeted for publication of the *Journal*. It has allotted a fixed amount of funds (based on the number of the Society's dues-paying members); there will be no backstop for any shortfalls in advertising income. Given the present fiscal setting, the Editor and the Editorial Board have adopted a plan for living within a new and lower budget. Beginning in January the *Journal* will appear bimonthly (January, March, May, July, September, and November). The Society's Roster will be published in August as a supplement. This strategy will allow us to publish independently of advertising income (although we will continue to seek that). We are hopeful that revenues from advertising sales will allow us to publish each year one or two supplementary numbers of the *Journal* devoted to single topics (we are planning next year on covering emergency medical services in North Carolina, and the care of the elderly).

> "An abiding interest in the phenomena and the substance of medicine is what anoints us as professionals, and it is communicating what we see and hear and think and feel that sustains us in that professional mode."

The change in frequency of publication, while necessary and preferable to dissolution of the *Journal*, has a number of implications for us all as doctors. For some time I have viewed with dismay the present trends in health care and their toxic effects on the practice of medicine. It is my thesis that medicine as a *profession* is in danger of extinction (or mutation to a new and essentially alien form). The business of disease treatment will persist (and may well improve) but medicine is more than mere treatment. The practice of medicine is no mere job, no occupation, no nine-to-five; it is not a daily grind. Medicine is—and has been for over 2,500 years—a learned and scholarly profession. The *Journal* stands as an antidote to the forces of deprofessionalization. Its pages are open to all practicing physicians (and other interested correspondents such as medical students and physician assistants). We promote dialogue among practitioners about the practice of medicine in North Carolina. Our pages are open (and we hope interesting) to all who have something to say about that practice. Not surprisingly, many of the *Journal's* articles come from academic centers—we are all aware of the academic imperative to publish (or perish)—but last year, more than 40% of the papers published in the *Journal* came from practitioners with no academic ties, no reward other than the satisfaction of looking and seeing and writing about what they saw—just as doctors have done through the ages. Equally encouraging, many seasoned academics use the *Journal* to try out new forms of writing, to leave their academic trappings behind (witness Dr. Pisetsky's paper and Dr. Porter's comment in this issue). Many fledgling authors, students or residents, use our pages to try their wings.

An abiding interest in the phenomena and the substance of medicine is what anoints us as professionals, and it is communicating what we see and hear and think and feel that sustains us in that professional mode. The *Journal*, while only one, is an important link in the chain that binds us together as doctors, whatever our specialties. The headlong rush to care management and the corporate deprofessionalization of medicine risks squandering the trust that doctors rightly cherish. The scenario is chilling: patients who cannot trust us to serve their interest unhesitatingly; employers of physicians who do not entrust to them the tasks of caring, but instead monitor practice profiles and base judgment on stark statistical data about each doctor. Without the bond of trust, I believe that the whole structure of the House of Medicine will fall into decay. Perhaps it is nearly there. Poe would recognize the terrain—the bleakness, the blandness, the lack of verve. ❑

An important message—for Journal *readers:*

Beginning next month, the North Carolina Medical Journal will publish every other month. Issues will be published in January, March, May, July, September, and November 1996. The North Carolina Medical Society Roster will be published as a separate supplement in August.

All manuscript submissions, letters to the editor, and comments and suggestions for the Journal should still be sent to Box 3910, Duke University Medical Center, Durham, NC 27710, 919/286-6410, fax: 919/286-9219.

CASE REPORT

Megaloblastic Cytopenia in an AIDS Patient Treated with Trimethoprim-Sulfamethoxazole

Paul J. Shami, MD, and Jennie Crews, MD

Trimethoprim-sulfamethoxazole (TMP/SMX) is used to treat AIDS-associated Pneumocystis carinii pneumonia. Aside from allergic skin rashes, it is usually a very well-tolerated drug. Nevertheless, serious complications can occur, as demonstrated by the megaloblastic crisis that occurred in an AIDS patient during treatment of P. carinii pneumonia with high doses of TMP/SMX.

Our Patient

A 26-year-old man presented with two days of fatigue and dyspnea. He had a temperature of 40.3°C, a respiratory rate of 20/min, diffuse lymphadenopathy, and crackles at both lung bases. Blood hemoglobin was 15 g/dL; white blood cell count, $4.7X10^9/L$ with a normal differential; platelet count, $161X10^9/L$. Chest x-ray showed diffuse interstitial infiltrates.

He was admitted and started on intravenous TMP/SMX (20 mg/kg of trimethoprim per day) and erythromycin (1 gm) every six hours. Antibodies against the human immunodeficiency virus were detected in his serum by ELISA and Western Blot. Pneumocystis carinii pneumonia was diagnosed by bronchoscopy, and erythromycin was stopped on day 3.

On day 3, he became anemic and leukopenic. By day 7 his hemoglobin was 11.0 g/dL; white blood cell count, $2.1X10^9/L$; platelet count, $161X10^9/L$. Erythrocyte glucose-6-phosphate dehydrogenase activity was normal. His serum folate was 1.8 ng/mL (normal greater than 2.5 ng/mL), but his erythrocyte folate was 356 ng/mL (normal 120 to 806). His vitamin B_{12} level was 216 pg/mL (normal greater than 160).

On day 10 his peripheral blood smear showed no erythrocyte macrocytosis or hypersegmentation of neutrophils. A bone marrow aspirate revealed megaloblastic changes involving all series (Figure 1a and 1b, next page).

His respiratory status improved and treatment was changed to oral TMP/SMX (480 mg of the trimethoprim component) every eight hours. He was also started on folinic acid (15 mg orally every six hours). On day 12, the white blood cell count had increased to $4.1X10^9/L$ and the hemoglobin to 12.5 g/dL. He developed a rash and the oral formulation of TMP/SMX was changed back to the intravenous form.

Folinic acid was stopped on day 12. The patient again developed a pancytopenia with a nadir on day 16 (hemoglobin 10.8 g/dL, white blood cell count $2.8X10^9/L$; platelet count, $42X10^9/L$). He was put back on folinic acid and TMP/SMX stopped. On day 18 his hemoglobin was 11.8 g/dL; white blood cell count, $3.5X10^9/L$, and platelets $122X10^9/L$. After discharge his blood counts ultimately returned to normal.

Discussion

Our patient had a low serum folate, but his folate stores were not depleted as evidenced by normal red blood cell folate levels. He was not B_{12} deficient. Nevertheless, his bone marrow aspirate showed megaloblastic changes in all series. His cytopenias improved with the administration of folinic acid while on TMP/SMX. When folinic acid was withdrawn while TMP/SMX continued, his leukopenia recurred and thrombocytopenia appeared. These reversed with folinic acid. His blood counts ultimately normalized upon withdrawal of TMP/SMX. We therefore believe that he had an acute megaloblastic crisis associated with the TMP/SMX.

TMP/SMX has been associated with few hematologic complications in the non-AIDS population.[1,2] On the other hand, AIDS patients treated with TMP/SMX have a high incidence of pancytopenia,[3,4] but the mechanism is not clear. Kobrinsky et al reported a case of acute megaloblastic anemia in a non-

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AIDS patient who was folate-deficient and receiving TMP/SMX.[5] McKinsey et al reported a case of acute megaloblastic crisis in an AIDS patient who was B_{12} deficient and receiving trimethoprim and dapsone.[6] In spite of normal red blood cell folate levels (indicating normal folate stores), our patient had low serum folate, probably reflecting a newly developed deficiency. This may have made him more sensitive to the challenge of a dihydrofolate reductase inhibitor like trimethoprim. Even though bacterial dihydrofolate reductase is more sensitive to trimethoprim than the human enzyme, high doses of trimethoprim could affect the latter. Indeed, the case reported by Kobrinsky et al[5] involved the use of high doses of TMP/SMX, which we had also used with our patient. Thus, the combination of a B_{12} or folate-deficient state with the use of high doses of trimethoprim could constitute a risk for the development of an acute megaloblastic crisis.

Megaloblastosis is not the cause of most cases of pancytopenia secondary to TMP/SMX in AIDS patients. However, B_{12} and/or folate deficiency have been reported to be more common in that population.[7,8] Consequently, AIDS patients may be particularly sensitive to the challenge of dihydrofolate reductase inhibitors. Bone marrow has not been examined systematically, but when it has, no megaloblastic changes have been found.[2] Despite this, some authors have advocated the prophylactic use of folinic acid,[9] but Bybjerg et al demonstrated no protective effect of folinic acid[10] in a prospective, randomized trial, although their study involved a small number of patients. A systematic examination of the bone marrow in all cases might be informative but impractical. The routine prophylactic use of folinic acid cannot be advocated at present because it is expensive and its efficacy in this situation is yet to be definitively proven. However, measuring serum folate and B_{12} levels and replacing deficiencies before instituting therapy with high-dose TMP/SMX could be prudent if clinically feasible. If an acute megaloblastic crisis develops, the prompt administration of folinic acid should reverse the process, and if the clinical situation allows, it is wise to switch to an alternative antibiotic regimen. ❑

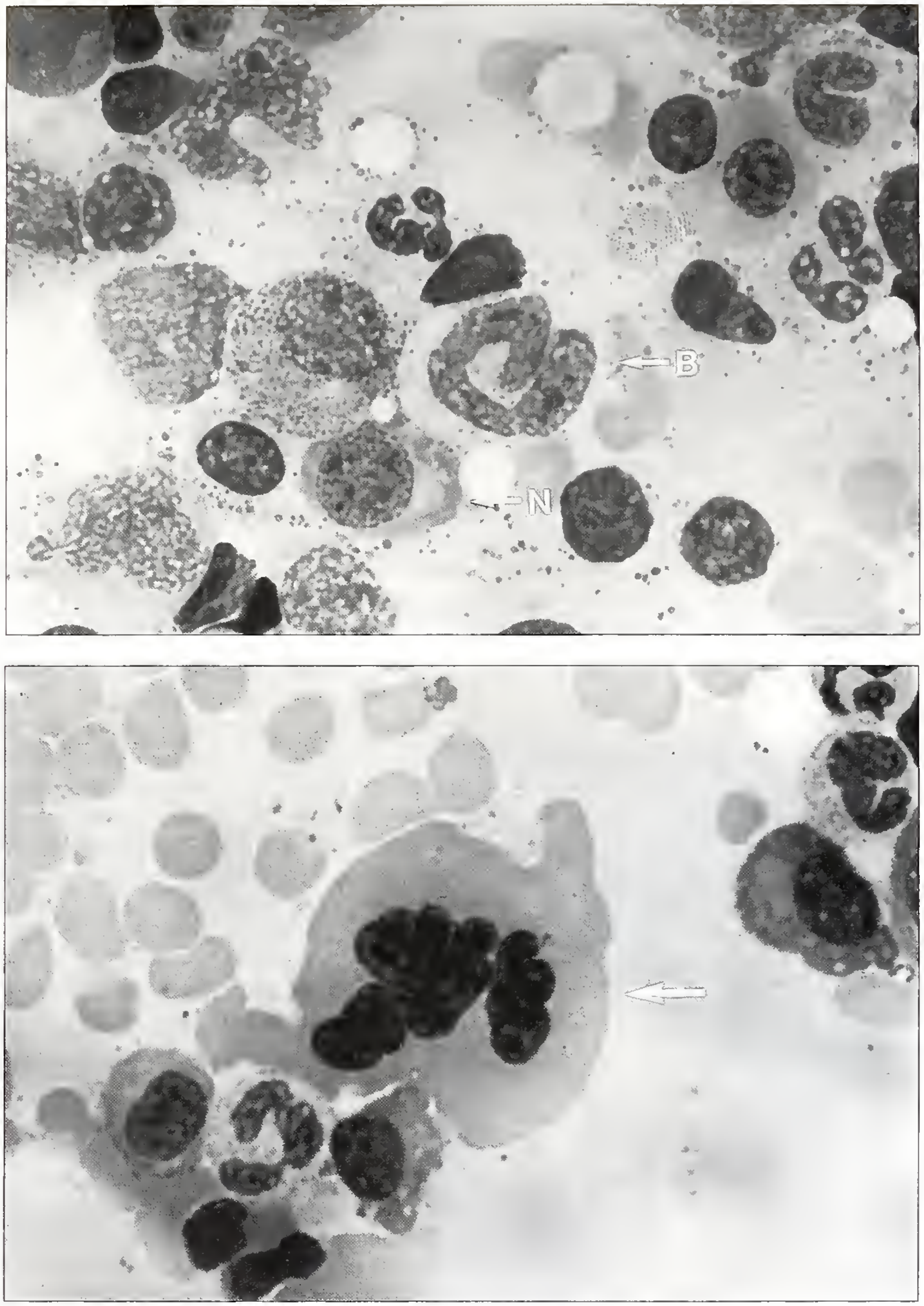

Fig 1a (top): Photomicrographs of bone marrow aspirate showing megaloblastic changes in all series. Giant bands (B) and megaloblastic normoblast (N). **Fig 1b (bottom):** Multinucleated megaloblastic normoblast (at arrow). (Wright's stain, 100X magnification).

Continued

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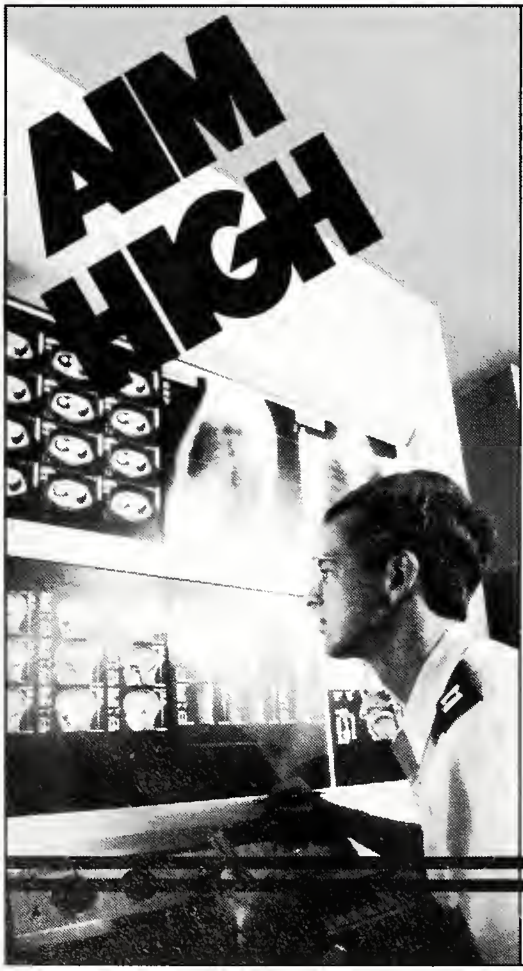

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CASE REPORT

Jejunal Diverticula

An Unusual Case of Massive Gastrointestinal Hemorrhage

Lemuel B. Kirby, MD, John T. Woosley, MD, and Mark J. Koruda, MD

Small intestinal diverticula are outpouchings of some or all layers of the intestinal wall from the lumen toward the mesenteric or peritoneal surface. Such lesions had been noted only at autopsy until 1906 at which time small intestinal diverticula were discovered incidentally at laparotomy.[1] The prevalence of these lesions is often underestimated because they are difficult to see both radiographically and at operation.[1] The most common diverticulum of the intestine (Meckel's diverticulum of the ileum) represents a congenital persistence of the embryonic yolk stalk; non-Meckel's diverticula of the small bowel occur (in order of decreasing frequency) in the duodenum, jejunum, and ileum.[2] Jejunal diverticula, although rare, are particularly prone to bleed, and therefore represent an unusual but important cause of gastrointestinal (GI) bleeding.

In this paper we present the case of a patient with massive gastrointestinal bleeding from a jejunal diverticulum, and briefly review the subject.

Our Patient

An otherwise healthy 61-year-old man was admitted to a hospital because of hematochezia, nausea, and vomiting for 24 hours. His hematocrit was 14%, and he was given 10 units of packed red blood cells. The following day, he vomited blood and was transferred to the University of North Carolina Hospitals. A Technetium 99m-tagged red blood cell scan showed increased activity in the left upper abdominal quadrant (Figure 1, next page) and was thought to represent hemorrhage into the splenic flexure of the colon. To confirm this, he underwent immediate visceral angiography. Injection of the superior mesenteric artery demonstrated a small focus of extravasation overlying the left upper quadrant. Contrast pooled in this area and then filled the lumen of the proximal small bowel on delayed images (Figure 2, next page).

At exploratory laparotomy with intraoperative upper endoscopy, the lumen of the small bowel was filled with blood. Five diverticular outpouchings were noted on the mesenteric border of a 20-cm segment of the jejunum starting approximately 25 cm distal to the ligament of Treitz. The diverticular openings ranged in size from 1.4 x 1.0 cm to 1.1 x 0.8 cm. The endoscope was guided into the largest and most proximal lesion, which was found to be actively bleeding. A 26-cm segment of jejunum containing all five lesions was resected and primary anastomosis was performed. Inspection of the resected jejunum confirmed the presence of diverticular disease (Figure 3, next page). The patient recovered uneventfully.

Discussion

Jejunal diverticula are thought to develop during embryogenesis as the intestine lengthens and extrudes. They are referred to as protraction diverticula and occur on the mesenteric border of the gut at points where blood vessels penetrate the intestinal wall. Jejunal diverticula have been reported in 0.5%-2.3% of all small bowel radiographic contrast studies and in 0.3%-4.5% of all autopsies.[3-5] A familial predisposition to jejunal diverticula has been described as well as an associated increased incidence of immunologic diseases such as rheumatoid arthritis, ulcerative colitis, thyroiditis, and non-viral hepatitis.[6]

Jejunal diverticula vary in size from 1 cm to 10 cm and may be globular, bilobed, cylindrical, or lobular in shape. They may contain vegetable fibers, chyme, parasites, bones, enteroliths, or gallstones.[7] As many as 500 of these lesions have been described in a single patient.[1]

Jejunal diverticula produce symptoms (obstruction, perforation, and hemorrhage) in up to 50% of patients.[6,8] The most common symptom is abdominal pain due to partial small bowel obstruction with stasis and bacterial overgrowth leading to a blind loop syndrome.[1] Complications, occuring in 5% to 10% of symptomatic patients, can be life-threatening as in the case of complete obstruction with perforation, or hemorrhage.[1] Fortunately, jejunal diverticula rarely

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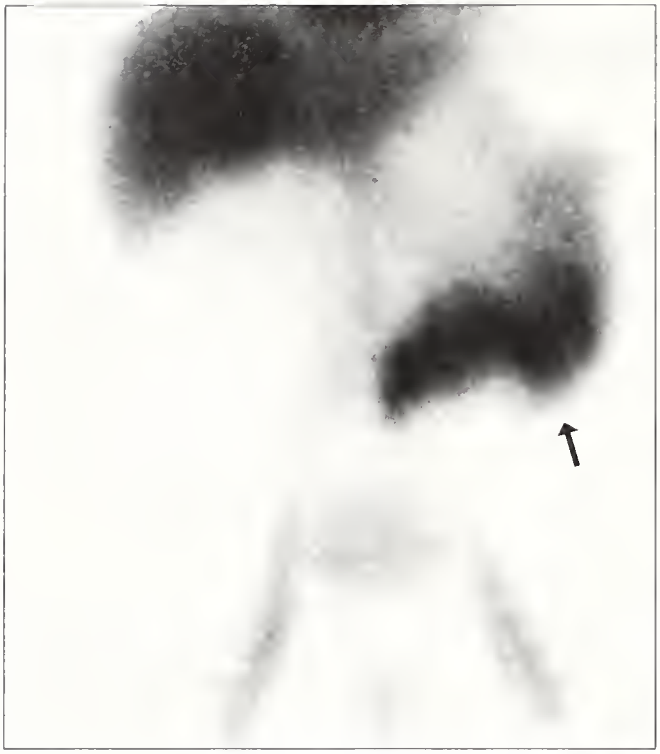


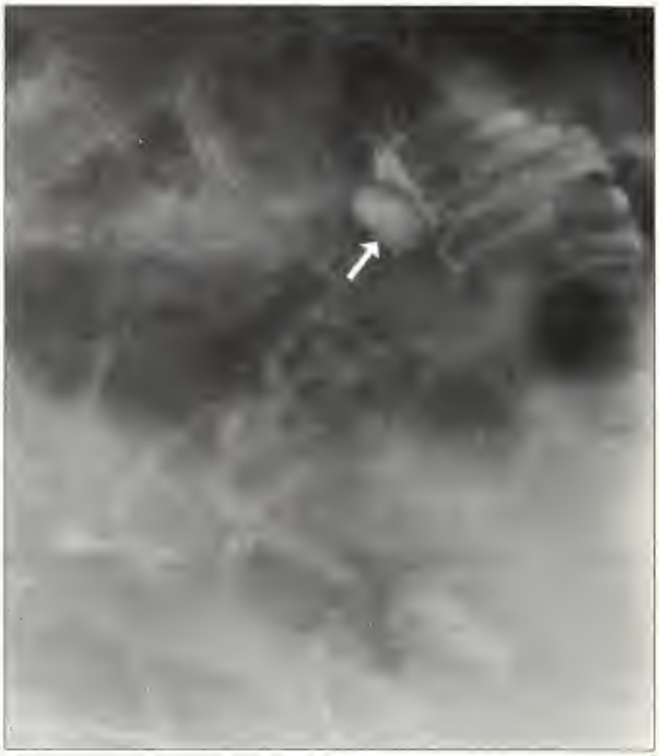
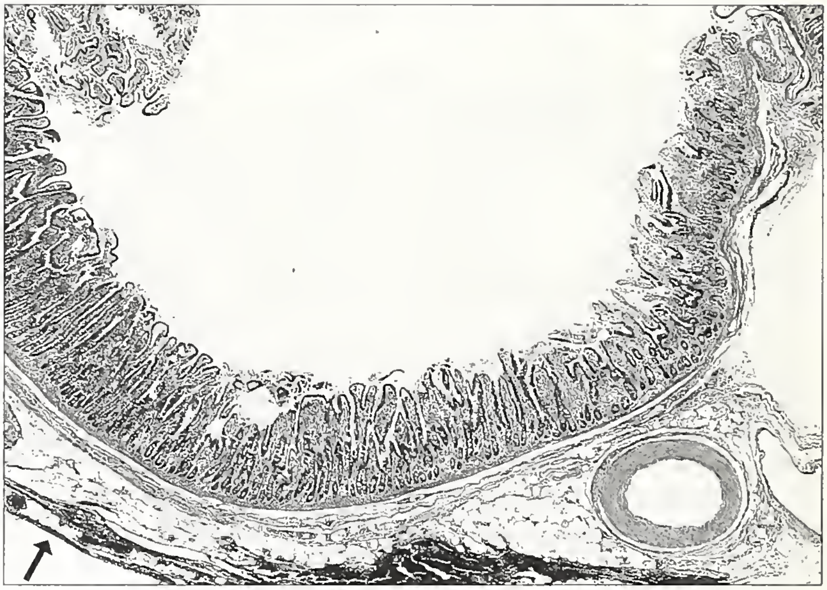


Fig 1 (above left): Accumulation of Techetium 99m tagged erythrocytes in the left upper abdominal quadrant 30 minutes after injection. **Fig 2 (above right):** Superior mesenteric artery angiogram demonstrating pooling of contrast and extravasation into the lumen of the small bowel. **Fig 3 (right):** Cross-section of a jejunal diverticulum. All bowel layers are present although the muscularis propria (arrowhead at left corner) is markedly attenuated. Note the extreme closeness of a major mesenteric artery branch to the bowel lumen (lower right corner). Hematoxlin and eosin, X20.



cause GI bleeding; fewer than 60 cases had been reported as of 1992.[9] Recently, Tsiotos found GI hemorrhage in only one of 47 patients followed for 15 years after incidental diagnosis.[10] Hemorrhage from jejunal diverticula has been attributed to diverticulitis with vascular ulceration, and to foreign body trauma, inflammation, and congenital arteriovenous malformations.[9]

Jejunal diverticula are difficult to diagnose. Neither history nor physical exam is particularly helpful, and therefore detection requires a high index of suspicion.[11] When jejunal diverticula do cause GI bleeding, those patients who present with chronic melena may describe associated long-standing abdominal pain. Those with acute bleeding often have no prior gastrointestinal complaints[12] (as with our patient). When a jejunal diverticulum is the suspected cause of active GI hemorrhage, diagnostic testing should begin with selective mesenteric angiography. Most patients who have chronic melena will already have undergone colonoscopy and esophago-gastro-duodenoscopy with negative results. Radionuclide-tagged red blood cell scans may be helpful in patients with an equivocal or negative angiogram.[9] This test may precede angiography, as in our patient.

Management of bleeding jejunal diverticula involves laparotomy with resection of the segment of jejunum containing the lesion. As with our patient, primary anastomosis can nearly always be performed.[1] Since jejunal diverticula are located within the leaves of the mesentery, they are difficult to identify at exploration (but it is even more difficult to identify bleeding points). Rubio and Farell suggest leaving the angiography catheter in place during the operation and injecting methylene blue intraoperatively to localize the bleeding site.[13] In our patient, intraoperative endoscopy was helpful in identification of the bleeding lesion.

In conclusion, we remind the reader that jejunal diverticula, although unusual, can lead to life-threatening hemorrhage which can mimic either upper or lower intestinal bleeding (our patient had elements of both). Diagnosis can be very difficult. Therefore, we urge a high level of suspicion in patients whose GI bleeding has not been diagnosed with upper endoscopy or colonoscopy. ❑

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Consultation at Twilight

David S. Pisetsky, MD, PhD

My last day as a doctor was April 6, 1994, two days before my 64th birthday. I saw five patients. Two had chest pain, one had belly pain, one couldn't pee, and one was dying of cancer and needed someone to talk to and fill a morphine prescription. I heard two heart murmurs (one a harsh grunt and the other a faint whisper, just like the textbooks say), felt a spleen tip, and rubbed my finger over the largest prostate gland I think I ever felt. I also had a nice goodbye party from the clinic staff who had strung a banner over my office door:

GOOD LUCK, DR. M, WE'LL MISS YOU!

I had been worried how the day would go. I have had many experiences in life, but never the wrapping-up of a career. Since I was tenured, I was entitled to stay on at the Medical Center, but I thought my days as a doctor were over. The place had changed—the new dean was only 48 and had an MBA—and my enjoyment was waning, what with the demands of the administration and uncertain rewards. I wanted another challenge, although I had not yet decided what to do next.

I had been telling my patients for over six months that I was retiring and would be transferring them to another doctor, Ed Brooks. Brooks was a former student of mine, a bright, snappy young man and one of our best.

The goodbyes my patients and I exchanged on that last day in the clinic were very business-like. We wished each other good luck and I told them that, if they ever needed me, they should call. Not one voice cracked and not one tear was shed. Actually, I think my patients were worried about me—I suspected they thought I was retiring because I was sick—and didn't want to burden me with their concerns that day.

Everything was going as well as could be expected until just after 3 p.m. I was dictating my notes and my beeper went off. I was looking forward to freedom from that beeper and its awful sound. Its penetrating blast never failed to startle me and set my heart racing. I couldn't imagine who was paging me on my last day of work and was surprised, after I reached the hospital operator, to learn that it was an outside call from a Ms. Egan. I could not place the name.

The operator transferred the call to the extension in my office. I picked up the phone and said "Dr. Morgan here."

"Dr. Morgan, this is Louise Egan. I'm glad I could catch you before the day was over." The voice was pleasant.

"Go on," I said.

"Dr. Morgan, I perform utilization review for Consolidated Health Systems. I thought it would be best for me to speak to you personally."

More than almost anything else in my job, I disliked utilization review. "How can I help you?" I asked, trying to be civil.

"I'm not sure that you can. I was calling to let you know that we must deny payment on your claim for reimbursement for services submitted on behalf of your patient, Mr. Ross Bergano. That's claim number 3452879. If you don't remember the case, I can hold if you would like to get your records."

I didn't need to refresh my memory about Ross. Ross was like family. I had taken care of him for 20 years and watched him grow dull and weak for the past five. He had shrunk from a robust man with heavy arms and a thick chest into a fragile little creature who wheezed when he talked and peered at the world from sunken gray eyes.

"Why are you denying the claim?" I asked.

"Well, Dr. Morgan, our review indicates that the care rendered was excessive."

"Excessive? How?"

"You did two follow-up x-rays for a routine pneumonia. One was sufficient."

"Sufficient for what?"

"For the follow-up of pneumonia."

"I'm sorry. One was not sufficient in this case," I insisted. Ross's pneumonia had been slow to clear. His cough persisted, so I asked him to bring in a cup of the sputum for my own inspection. It smelled horrible and was muddy brown in color and tinged with flecks and little strings of old blood. Looking at it at the bottom of the cup, I couldn't tell whether this mess resulted from cancer or infection.

I had also been worried about Ross's chest x-ray. There

Dr. Pisetsky is Professor of Medicine and Acting Chief, Division of Rheumatology, Allergy, and Clinical Immunology, Duke University Medical Center, and a staff physician at the Durham VA Medical Center.

was a lingering shadow at the border of lung and heart. I had seen cancer do that, masquerade as a pneumonia until it was too late, spreading throughout the chest and insinuating itself everywhere—bone, liver, even brain. I had repeated the x-ray twice and was relieved when the shadow disappeared, and I could reassure Ross and his family that he was getting well after all. He had escaped a dreaded cancer—at least for the time being. Ross had smoked two packs of cigarettes a day for 50 years and I was convinced that it was only a matter of time before a malignancy—the "big C" as Ross said when he still was coherent—would take over his chest.

> "Perhaps the stress of the day was getting to me. I was becoming rattled, something a doctor should never permit."

"Dr. Morgan," Ms. Egan said as if she were a schoolteacher trying to explain the lesson to a slow student, "according to practice guidelines, the management of routine pneumonia in patients over the age of 65 allows for two x-rays, one at diagnosis and one within two weeks after antibiotics are finished. I can't allow two x-rays as follow-up."

As far as I was concerned the practice guidelines were ridiculous and couldn't be applied in a case as complicated as Ross's. I decided I disliked Ms. Egan's tone. It wasn't polite. It was condescending. I was not going to be talked to in that way.

"Ms. Egan, do you know who you are speaking to?" I asked. Perhaps the stress of the day was getting to me. I was becoming rattled, something a doctor should never permit.

"Yes, I do. You are the physician of record for Ross Bergano." Her tone was literal.

"That is only partially right, Ms. Egan. I am Thomas Morgan, Professor of Medicine at the Medical Center." My wife says that whenever I announce myself like that, I am beginning a lecture in which I will sound overbearing and imperious and will hurt my case more than help it. But sometimes I can't restrain myself. I continued. "Ms. Egan, I have been a physician for nearly 40 years." I didn't want to add that I was about to retire. "I have taken care of probably 500 people with pneumonia, and actually, I am an expert on the subject. People call me from all over the world for my opinion on how to manage difficult cases. I have written the chapter on respiratory infection in *Cecil's Textbook* and am the author of 100 papers on the subject. I think that would grant me the right to order one extra chest x-ray if I think it is necessary. Wouldn't you agree?"

Ms. Egan was not impressed. "Dr. Morgan, all the physicians we contact feel like you. They all consider themselves experts in medicine and very able to take care of their patients. But that doesn't mean that we can let them do anything they want and then have us pay for it."

I could feel the anger rising in me. The muscles of my face tightened, my eyes burned. "Are you a doctor, Ms. Egan?" I asked. My tone was aggressive.

"What did you say?"

"I said, 'Are you a doctor?'" making each word distinct.

"I'm sorry but I don't have to answer that question," she replied.

"I know you don't have to answer. But tell me, yes or no. Are you a doctor?"

"No," Ms. Egan said curtly.

"That's what I thought. Another question. Did you see the patient?"

"Of course not."

"Well, I *am* a doctor and I *saw* the patient. He needed another x-ray. So just pay the claim."

"I can't do that, Dr. Morgan, but, if you would like to appeal the claim, I can put you through to my supervisor." Ms. Egan was doing her best to sound calm but I could hear the edge in her voice. She had probably once been a nurse. Wearied of the long hours on the wards, she had chosen utilization review as a better living. I imagined she wore suits with a designer scarf, drove a car with a cellular phone, and worked in a glass-façade building in an office park where she had boosted her income while working nine to five.

"Ms. Egan?" I asked. My voice sharpened. I had only a few minutes left in my life as a doctor—the time it takes to do a blood pressure or examine the fundus of the eye—and I was feeling a certain freedom. I could say or do things without worry about repercussions.

"Yes."

"Ms. Egan, is your supervisor as much a jerk as you are?" I asked, reckless and churlish. "Because as far as I am concerned, you are really acting like a jerk." I exaggerated the word "jerk" so it made a chopping sound.

The phone line was quiet and then Ms. Egan said, her voice ripped with irritation, "I don't have to take this."

"You're right," I said, "So why don't you go to hell!" and I slammed down the phone.

> "For an instant I felt daring. Heroic. Triumphant. Then, it came to me. My conversation with Ms. Egan was my last official act as a doctor."

For an instant I felt daring. Heroic. Triumphant. Then, it came to me. My conversation with Ms. Egan was my last official act as a doctor. Suddenly I felt empty and demeaned. I was sitting at my desk in my small, dark office near the clinic, a pile of charts to my right, a copy of *Cecil's* to my left. Awards, diplomas, and licenses covered the wall. Many were stained with age, their color a sallow yellow.

On the wall, just below a certificate from the American

College, was a photograph taken when I was an intern. Other members of the house staff and I stood on the steps of the old hospital. I remembered its red brick and the large wards cooled by fans. I was dressed completely in white and had slicked hair and the determined look of a smart young man.

My chief stood in front of me, a handsome man in his 60s with sharp features and piercing eyes. He wore a vest under his long white coat and looked regal among the youth of the house staff. We loved him. We feared him. We slaved for him. He was a giant. He was King Arthur and we, his round table.

I sat there immobile and stared blankly at that picture for 10 minutes. Then I sighed and resumed my final dictation, dumbly talking to a little machine with a whirring tape.

When my notes were complete, I began packing the contents of my desk and files into cardboard boxes. I worked sluggishly, and as I pored through those drawers, I found the mementos of an entire career. I found a draft of my first paper, the one I had typed on my Smith Corona. I was so proud of my effort but my chief, who strove for perfection, had made marks on every paragraph. He had used black ink and a bold, precise script but his words were now faded a pearly gray. I coughed from the dust, and possibly from recollection. I finally understood why my days as a doctor were over. They were over not simply because I had grown old, or my mind slow, or my ideas outdated. No, my days as a doctor were over for other reasons.

The giants were gone. The round table had vanished. I could never work for Ms. Egan. ❑

The Healing Power of Parable

William G. Porter, MD, Department of Internal Medicine, Carolinas Medical Center, Charlotte, and Journal *Editorial Board member*

In "The Nature of Suffering and the Goals of Medicine," Eric Cassell observes that injuries to the integrity of a person can be expressed in a number of ways—sadness, anger, withdrawal, yearning, and so forth. He also observes: "We know little about the nature of the injuries themselves, and what we know has been learned largely from literature, not medicine."[1]

Granted, Cassell had in mind the suffering of patients, not doctors; but as Dr. Pisetsky's story illustrates, literature, in this instance fiction, can be a powerful vehicle for examining injuries to the integrity of physicians. The story of Dr. Thomas Morgan's last day at work illuminates the modern doctor's dilemma more vividly than any of the hundreds of articles and editorials on the subject: Which master will the doctor serve, his patient or the utilization reviewer? On whose terms will he practice, his own, handed down from the giants who were his clinical mentors, or inflexible guidelines imposed by bean-counting clerks?

The giants of the past did not have to practice by guideline. The fact is, they were largely unmindful of (or at least uninfluenced by) the costs they were generating. The current crisis is an unintended part of their legacy.

Where, if not to the giants, should the guideline-plagued, suffering doctor turn? Again, literature can help. In Camus' *The Plague*, Dr. Rieux treats patients day and night, at great risk and sacrifice to himself and with little measurable benefit to the dying. "There lay certitude; there, in the daily round. All the rest hung on mere threads and trivial contingencies; you couldn't waste time on it. The thing was to do your job as it should be done."[2] In *The Doctor Stories*, William Carlos Williams describes the anger, frustration, and self-doubt he felt, especially on house calls in the middle of the night. Sometimes he got paid; often he did not. But always he diagnosed and treated as best he knew how, on his own terms.

How can today's doctors do their jobs when Camus's "trivial contingencies" *do* waste their time, when the daily round is interrupted by Kafkaesque interrogations from a faceless bureaucracy? Would Rieux have stopped lancing buboes to answer these calls? Would Williams have called the utilization reviewer to be sure that home deliveries after midnight were covered? Must we? And if we must, are there no alternatives to rage, depression, and retirement? Is it possible for today's beleaguered clinician to become the paragon, the giant to whom the next generation will look for inspiration?

I have searched in vain for the literary equivalent of the managed care gatekeeper, one who measures success one unreferred patient at a time. Sinclair Lewis's Martin Arrowsmith, disgusted by the materialism and shallowness of clinical medicine, goes off into the woods to do pure research; Dr. Colin, in Graham Greene's *A Burnt-Out Case*, toils away in the equatorial leprosarium. But these are hardly mainstream coping strategies. The task for doctors caught in the web of managed care is to craft practice strategies that will not compromise their integrity or deflect them from the venerable goals of medicine. Those who succeed can make the daily round something more than a joyless, relentless, Sisyphean exercise. They can become the men and women whose lives inspire the stories that can connect medicine to its glorious past and illuminate its uncertain future. ❑

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Back When I Was an Intern

Dawn S. Brezina, MD

Everyone in medicine has vivid memories of the years following medical school, years devoted to learning the practice of medicine, the residency. During my recently completed Internal Medicine residency, I was impressed by how often long-established physicians said that their training programs were much more difficult than today's. Interesting comments, but are they correct? How do training programs today compare with those of the mid-1970s? I find myself uniquely capable of answering this question because I sort of span the gap.

My husband and I finished medical school at the University of Miami in 1975. We stayed on as house staff at Jackson Memorial Hospital in Miami, then in 1976, embarked on a two-year stint as General Medical Officers in the United States Navy. Later, my husband finished a residency in Obstetrics and Gynecology while I worked part-time in an emergency room to help pay the bills. By the early 1980s, my husband had established a practice in North Carolina, and I found myself busy with four small children. There was no time for medicine. I did not practice for more than eight years.

When I turned 40 I thought, "After so many years, how can I ever work as a physician again?" It was frightening to suppose that the work I had once enjoyed was now out of reach. Since all of our children were of school age, I decided to give it a try. I approached the director of the Internal Medicine training program at East Carolina University about a possible house staff position. He was skeptical, but finally we agreed that I would spend six months as an intern; if all went well, I could finish the residency. Sounded great to me. Hey, I had been an intern at "Jackson" when giants walked the halls! I had been a 'tern back when it was every third night on call, and no vacation. It had to be easier now.

I walked into the Cardiac Care Unit on January 1, 1991. Suddenly, I realized I didn't know anything. Every patient was on a drug that ended in "-pine" or "-pril." Where was digitalis? I did recognize good old lasix and lidocaine. They felt like friends. As we made rounds, I looked at my fellow residents who did not know that we came from different eras. It was as though I had hit a time warp. I was an anachronism.

For the first few weeks, I kept my mouth shut and learned as much as I could. What *were* the standard new tests? What do you learn from a thallium scan? There was a vast sea of information I did not know about. I didn't even know what questions to ask; didn't even know what part of the information I once knew was still true. Every now and then I got caught. Once, when instructed to order a hepatitis screen, I ordered an "Australia antigen," a term from the prehistoric past.

In 1991, interns were on call every fourth night. It didn't sound too bad, but after four or five months I was a walking zombie. At age 41 you just don't bounce back the way you do at 25. Hospitalized patients in the 1990s were sicker than they were in the 1970s. Patients who would have gone to the ICU in 1975 often were managed on the General Medicine floor. Ward services were large in the 1970s, but many of the patients were on "automatic" maintenance therapy that required little more than monitoring occasional labs. Not any more. In the 1970s patients were often admitted for a diagnostic "work-up" of non-acute complaints, evaluations that today would certainly be made as an outpatient. Sometimes in the 1970s, people with good insurance would come in for four or five days just for a "complete check-up." Needless to say, this doesn't happen now. Home health options then were very limited, and patients with bacterial endocarditis or osteomyelitis or some other condition requiring intravenous medication were kept in the hospital for six to eight weeks. Patients admitted in the 1990s are always sicker, always require complex diagnostic tests (to be performed or ordered by the intern), consultations (to be arranged by the intern), lab data to be collated (by the intern), and a seriously disordered condition to be treated (orders by the intern). And all of this has to be done quickly because the patient has to be out of the hospital ASAP, before their funding runs out! An intern today must complete stacks of paper work that did not exist 20 years ago.

On the other hand, in 1975, interns started all the IVs and made all of the venipunctures for our patients; we no longer have to do that. Now lab values are available on computer, saving the time and effort we used to expend in chasing lab work. There is much less "scut" work today, and in general, the intern's time is spent more efficiently. Although many things have improved, unfortunately, there is still a pecking order, and

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the intern sits at the bottom. Contrary to the people who tell "war stories" about residencies of the past, residents today have a lot of responsibility and they work hard. I did not find it easier to be a resident in the 1990s, just different.

Not only has the residency changed, but plenty of other things are different too! The most striking change I found was in cardiology. I remembered cardiologists as "internists par excellence." They were the true "showmen" of the bedside exam, gleaning impressive details from every motion of the chest wall. A 1990s' cardiologist looks and acts more like a surgeon than an internist, and is more likely to carry an echo machine than a stethoscope. Maybe this is all for the best, but I still miss the old-style cardiologist.

In 1970 we had relatively few women in medicine. When my medical school class entered in 1971, we were considered avant garde because we had about 9% women medical students. On the wards, women medical students were constantly mistaken for nurses. Interestingly, I remember little discrimination by professors or peers, but patients commonly refused to have a female doctor! The typical medical student in 1970 was an unmarried, healthy young man, with an excellent undergraduate record, intensely competitive, and untiring. That brand of medicine, although highly productive, came at a price (remember *The House of God*). Today's medical school classes have about 50% women, and that diversity has contributed to a more open and tolerant, albeit a somewhat less intense, atmosphere.

Medicine, even with all the changes and even with a "kinder-gentler" character, is still a difficult career for a woman with children. No matter how you cut it, "Momma" usually takes care of the kids. It is very difficult for women to work full-time and still meet the obligations of work and family. Most women physicians who have children eventually work only part-time. This actually brings up a whole new topic: Why is child care usually the woman's responsibility, even though both parents work? When our children were small, my husband always said he was willing to take care of the kids, but in practice the point at which he felt compelled to intervene was so far beyond the point of my tolerance, that I always took care of things first. You might say, over the past 20 years we just never hit his threshold, because my threshold is an order of magnitude lower!

But I did finish the residency three years ago, thanks to the support of my husband, family, and the great people in the Section of General Medicine at East Carolina University. Now, as a practicing physician I can confirm that residency is still a "character-building" experience which no one forgets in a hurry. It is always hard work, but hard work on the "inside," changing, adapting, and learning. Maybe that is why, looking back, all of us think that what we did "back-when-I-was-an-intern" was so much more difficult than it seems now. ❑

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Final Appointment

J. Trig Brown, MD, MPH

Out of respect for my patient, I turn down the volume of my car radio as I near the home. Dusk is approaching, but the Carolina sun still burns brightly. The asphalt is soft from the heat, the road tar bubbles. Pulling away from the flow of traffic, I notice that there are no parking spaces available. I'm not surprised.

I cannot remember when I first began making these visits but now they are part of my routine. Always after hours, invariably they occur at times when I would rather be elsewhere. Tonight is no exception. I will have to rush home to get supper. Oh well, I think, it cannot be helped; as so often happens, my work is done on others' terms.

Tonight's terms are set by my silent partner, Death. Silent but ever present. I know that our partnership as basically unequal. On many days, I am no more than an arbitrator, bargaining with Death to extend the lease on my patient's vital signs. Ultimately, the leases all expire and Death prevails. Death has scheduled tonight's visit, but I see it as a direct extension of the work that I do with the living.

This is my first visit to this particular funeral home, but they all have similar features: a vast parking area adjacent to the canopied, circular drive; black Cadillac limos and hearses stand, spotless in the headlights. At the front door, a somber-faced man in a three-piece suit like a maitre d' greets and directs mourners into the correct suites.

I enter the room that holds my patient. I glance around to get my bearings. Against the far wall, several mourners gather at the head of his open casket. There are several clusters of family and friends. Without the coffin this might be a cocktail party or a reception. I sign the guest log. I weave a path through the crowd in the direction of his widow, also a patient of mine.

When I first began visiting funeral homes, I did so with doubts and fear. These visits force you to look your own limitations straight in the eyes. If you blink, all your anxieties ooze to the surface. Before one visit some years ago, I actually had a nightmare: the family stood pointing and shrieking at me, "There he is! He's the one to blame!" Fortunately, the dream nor anything even like it has come close to coming true. The real experience is quite the opposite.

Tonight, as usual, the widow is genuinely pleased and surprised to see me. For a moment I am the center of attention. She introduces me to all near by. Pulling on my arm, she guides me to sit near her on the sofa. The usual questions follow. "How do you think he looks?" "Do you think we did everything we should have?" "Do you think he suffered?" "What do you think he meant when he said thus and so?" "I think he knew he was dying, don't you?"

As always, I bend the truth in response to only one question. Never one to critique the handiwork of the mortician, I learned long ago that the correct answer to "How do you think he looks?" is "Peaceful." When, in the past, I once admitted to not having viewed the body, I found myself dragged across the room for a personal showing. "Peaceful" works just fine; it really isn't untrue.

Her other questions are the significant ones. Loved ones left behind need to know that they (and I) did everything necessary. I reassure her that we did all possible to alleviate his suffering. I tell her that it is normal to have questions about her husband's final weeks and days, and that, yes, some people do have an uncanny power to predict the end.

At all these visits there are things I must tell the survivors. I tell the widow how very sorry I am for her loss, that I enjoyed being her husband's doctor and that I, too, will miss him. I make it clear that my door is open to help her with any problems or with the questions that will (almost surely) arise in the weeks to come. Tonight, as with so many visits like this, I get a kiss on my cheek and several warm handshakes.

The summer heat blasts me as I leave the funeral home and head for my car. Almost knocked over, I pause for a deep breath of the hot humid air. For the first time tonight I feel unhurried. As always, I come to these visits with the unfinished clutter of the day spinning in my head. I leave feeling that a chapter is finished, a job done. Closing my eyes I offer a simple plea to my silent partner; please ferry my patient safely across the river Styx. ❑

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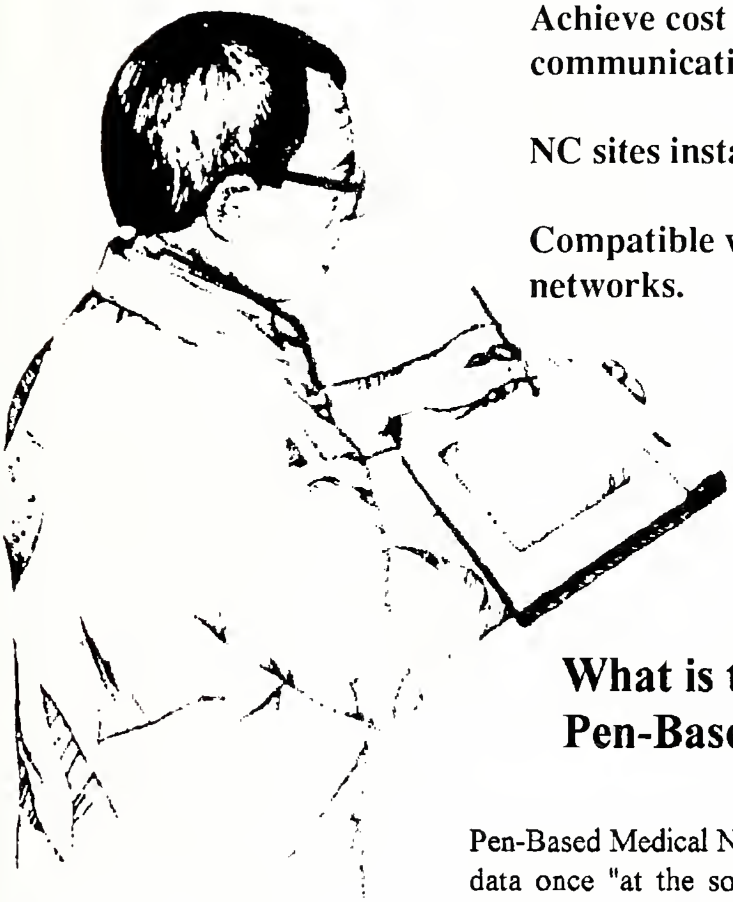

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Anti-Inflammatory Treatment of Asthma in Children

What Strategy is Appropriate?

Claude A. Frazier, MD

Almost four years have passed since the National Heart, Lung, and Blood Institute published its Expert Panel Report on asthma management.[1] Almost three years have passed since publication of the subsequent International Guidelines.[2] Both reports emphasize the inflammatory nature of asthma and the broad implications of this fact for treating the disease. In this article I focus on the large group of patients (and especially children) who fall into the category of "moderate" asthma.

Step-Care Asthma Therapy

United States guidelines[1] (see Figure at right) recommend treatment of "mild" asthma largely through environmental control and as-needed use of bronchodilators such as inhaled β_2-adrenergic agonists (up to three times a week). "Moderate" asthma should be treated with regular inhalation of anti-inflammatory medication, reserving inhaled β_2-agonists for as-needed use (up to three times a day). For children with moderate asthma, cromolyn sodium is the recommended first-step anti-inflammatory therapy.[1,2] "Severe" asthma requires aggressive therapy with higher doses of inhaled steroids, theophylline, short bursts of oral steroids, and even experimental agents.

Anti-Inflammatory Asthma Medications

The anti-inflammatory agents now available to treat patients with asthma include two nonsteroid anti-inflammatory agents (cromolyn sodium and nedocromil sodium) and a number of inhaled corticosteroids. All of these medications are intended to be taken regularly, as maintenance therapy, to prevent asthma symptoms. They are not bronchodilators. They should not be taken to relieve acute asthma symptoms once begun.

Cromolyn sodium. Cromolyn sodium (Intal®) has a long record of effective use in children and its safety profile is unparalleled among asthma medications.[3-5] In addition to its remarkable safety, at least one study in children has shown effectiveness comparable to inhaled steroids.[6] Cromolyn sodium is uniformly recommended as first-step anti-inflammatory therapy for children,[1,2] but many physicians have not yet adapted their treatment plans to this recommendation.

Cromolyn sodium is the only agent indicated both for chronic use and for pretreatment five to 15 minutes before exposure to allergens or certain triggers, such as exercise or cold air. It is available in two dosing forms: a metered-dose inhaler for children age five and older, and nebulizable solution in ampules for younger children, age two and older. For chronic use, it is initially given four times daily, but once control is achieved, patients can often reduce dosing to three or even two times daily (see package insert for full dosing information).

Nedocromil sodium. Nedocromil sodium (Tilade®) is a new agent, the first pyranoquinoline in clinical use. The international guidelines[2] rank nedocromil sodium as equal to cromolyn sodium and inhaled steroids for treating moderate asthma in adults. It is currently approved only for use in patients over 12 years of age, but studies in younger children have been reported.[7,8]

After more than seven years of experience worldwide, nedocromil sodium has shown an excellent safety profile. A recent review by de Jong et al[9] concluded that 16 mg of inhaled nedocromil sodium is comparable to 400 µg of inhaled beclomethasone and is particularly effective in patients with mild-to-moderate asthma. Generally, nedocromil is more effective than cromolyn but just as safe; concurrent use with inhaled steroids may provide some steroid-sparing effect. Nedocromil sodium is available as a metered-dose inhaler, and initial dosing is

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MANAGEMENT OF CHRONIC ASTHMA IN CHILDREN

MILD ASTHMA

SYMPTOMS / SIGNS		THERAPY		OUTCOME
Intermittent, brief wheeze/ cough/dyspnea <2x/wk Asymptomatic between exacerbations Brief wheeze/cough/ dyspnea with activity Nocturnal cough/ wheeze <2x/month Peak expiratory flow rate (PEFR) varies >20%	→	**Asymptomatic:** Pretreat as needed with β2- agonist or cromolyn for exercise, allergen exposure, etc.	→	Prevent symptoms
	→	**Symptomatic:** Inhaled or oral β2-agonist every 4-6 hours as needed during episode	→	Normalize lung function Reduce PEFR variability Normalize activity Control symptoms Prevent nocturnal cough/wheeze

MODERATE ASTHMA

Symptoms >1-2x/wk Exacerbations may last several days; affect sleep, activity Occasional emergency care PEFR 60%-80% baseline	→	Cromolyn sodium, 2 puffs or 1 ampule, 2-4x/day *and* Inhaled β2-agonist as needed, up to 4x/day *or* Sustained-release theophylline *or* Oral β2-agonist	→	Control symptoms Optimize lung function Reduce PEFR variability Normalize activity Minimize night symptoms Lessen use of β2-agonist Lessen frequency of attacks Prevent emergency visits
		If symptoms persist ↓		
		Add inhaled corticosteroids; May drop cromolyn/theophylline	→	

SEVERE ASTHMA

Continuous symptoms Limited activity Frequent attacks Frequent night symptoms Occasional hospitalization/ emergency treatment PEFR <60% baseline	→	Inhaled corticosteroids, 2 puffs 2-4x/day *with or without* cromolyn *with/without* oral sustained-release theophylline *and* Inhaled β2-agonist, up to 4x/day *and/or* Oral β2-agonist	→	Improve lung function Reduce PEFR variability Nearly normalize activity Less frequent night symptoms Fewer attacks Less use of β2-agonist Less need for oral steroids Fewer emergency visits
		and ↓		
		Consider oral corticosteroids		

Adapted from NHLBI
guidelines, 1991

two puffs, four times daily (see package insert for full dosing information).

Inhaled corticosteroids. Systemic (oral or injected) corticosteroids have been used to treat asthma for many years. Their effectiveness is unquestioned, but safety continues to be a concern.[10] Inhaled corticosteroid drugs include beclomethasone dipropionate (Vanceril®, Beclovent®), flunisolide (AeroBid®), and triamcinolone acetonide (Azmacort®). These drugs are undoubtedly effective in treating asthma and they are decidedly safer than parenteral steroids. They are not without risks, however, including side effects similar to those of systemic steroid treatment.[11-13]

Of special concern when treating children is the risk of growth suppression. One study demonstrated a significant reduction in growth in children with mild asthma receiving 400 μg of inhaled beclomethasone dipropionate per day.[14] Another study[15] of two groups of children, one treated for one year with inhaled beclomethasone (400 μg/day), the other with theophylline, found that the group treated with beclomethasone had a statistically significant reduction in growth rate compared to the group treated with theophylline.

> "In treating patients (especially children) one must consider whether the severity of the asthma makes the benefits of inhaled steroids outweigh the risks."

In treating patients (especially children) one must consider whether the severity of the asthma makes the benefits of inhaled steroids outweigh the risks. The package inserts for all inhaled steroids available in the US acknowledge this by including the statement: "[This agent] is *not* indicated for relief of asthma which can be controlled by bronchodilators and other non-steroid medications." This strategy may soon be revised when two highly topical inhaled steroids, budesonide and fluticasone, become available in the US. They may be useful in treating children with moderate-to-severe asthma.

Conclusion

Asthma is an inflammatory disease. Patients with moderate asthma cannot be controlled with as-needed β_2-agonists and need regular anti-inflammatory medication. Nonsteroid medication (cromolyn sodium or nedocromil sodium) should be used first, and for children under 12 years of age, cromolyn sodium is uniformly recommended. Patients who are not well controlled with a nonsteroid anti-inflammatory medication, may benefit from inhaled corticosteroid therapy. ❑

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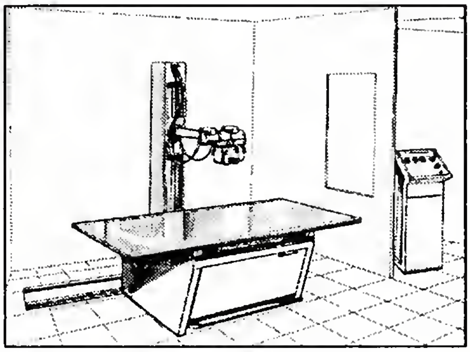

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"When I Have Fears That I May Cease To Be...."

Hydrogen Peroxide Poisoning

Ronald B. Mack, MD

The poet John Keats lived a short life and died a pitiful death. During his brief span of 26 years he managed to become a physician and to compose some of the most memorable poetry in our language. He spent six years studying medicine and about the same amount of time writing poetry. Ultimately, he chose poetry over medical practice, probably because of managed care and HMOs and DRGs, etc. Keats prescribed therapy for his friends and ultimately for himself but, alas, he died an agonizing death caused by tuberculosis, the popular "Captain of the Men of Death" at that period of history.

We tend to think of hydrogen peroxide as a benign, over-the-counter household staple, a "thing of beauty" as Keats might say. But is it a potential menace? Read on and decide for yourself.

Dangers of the Familiar

It feels strange to write about hydrogen peroxide as a potential toxin. It seems as if it has been around forever and probably all of us can remember getting lacerated or bruised as a child, and running to mother, who quickly applied hydrogen peroxide. We watched the white foam form on the wound and smelled the faint medicinal odor, believing that we were saved from a sad fate by a household miracle. The product is so ubiquitous that people tend to believe it has magical qualities.[1] It is primarily used because of its supposed antimicrobial effects, but also for ear wax removal, for vaginal douches, for enemas to remove fecal impactions, as a gargle for stomatitis, and, of course, for bleaching hair. The latter use was popular in the era in which I grew up, but then it was used only by women.

Hydrogen peroxide was discovered in 1818 by the French chemist Louis-Jacques Thénard, who named his discovery *eau oxygénée*. Monsieur Thénard was a hard-working dude, but because he was the offspring of peasants, he had great difficulty in securing a scientific education. He prevailed through hard work and produced a four-volume text on basic chemical theory and practice. This learned man taught at the College de France, the Ecole Polytechnique, the Sorbonne, and eventually became chancellor of the University of Paris. In 1799 he discovered Thénard's blue, a pigment used to color porcelain; he never was poor again. A few years after his death, his native village was renamed La Louptiere-Thénard in his honor. His ancestors could never say that "he got no respect."

One of the more remarkable features of hydrogen peroxide is its tendency to decompose readily into water and oxygen, the first observed instance of contact catalysis. It boils at 150°C, with sometimes violent, explosive decomposition. (Do not let your children read this or they might be tempted to put some of this stuff in the microwave). Concentrated hydrogen peroxide can start a fire when dropped on wood or paper; the most common household form of this substance has a concentration of 3%.

The product is so widely available that it should be no surprise that the 1994 annual report of the American Association of Poison Control Centers noted 7,797 human exposures, 4,257 in children under six years of age.[2] Ingestion is the most common route of exposure. The mechanism of action of hydrogen peroxide is rather simple: upon contact with tissues containing catalase, oxygen is liberated. Each 1% hydrogen peroxide is equal to 3.3% oxygen by volume; therefore, 1 mL of 3% hydrogen peroxide will release 10 mL of oxygen in a tissue reaction. Currently, an Olympic strength H_2O_2, 35%, is available and is promoted as a hyper- or super-oxygenation therapy for such lethal entities as cancer or AIDS. Yeah, sure, just like my Mom's homemade meatballs, said to be made with helium, so they would float in air, slightly above the linguine.

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The Perils of Peroxide

When speaking about hydrogen peroxide we must pay attention to the concentration involved and whether the product has been diluted by the user. Ordinary, everyday, 3% household hydrogen peroxide is, allegedly, only mildly irritating to mucous membranes. Small amounts will usually not cause serious problems from ingestion or ocular or dermal exposure although vomiting and diarrhea are relatively common after ingestion. Eye exposure to the 3% concentration can result in immediate pain and irritation but not severe injury.

A recent article reviewed all hydrogen peroxide exposures reported to a regional poison control center.[3] Young people (<18 years of age) accounted for 71% of the exposures, and most patients had a benign outcome. Exposure occurred by ingestion in 83%, leading to nausea and vomiting in 31% of cases. Other clinical problems included respiratory difficulties in 9%, sore throat in 5%, and abdominal distention in 5%.

> "Unfortunately (for some patients and some health care professionals), more concentrated solutions of hydrogen peroxide are readily available."

Unfortunately (for some patients and some health care professionals), more concentrated solutions of hydrogen peroxide are readily available. Greater than 10% hydrogen peroxide is referred to as industrial strength, and 35% is called a "food grade" solution (and there is, believe it or not, a 90% concentration, used in rocket propulsion). These products are very strong oxidizers. They are corrosive and can severely burn mucous membranes, gastrointestinal mucosa, the skin, and ocular structures. Concentrations above 10% are found in some hair-bleaching solutions.[4] Ingestion of the highly concentrated forms of this chemical can lead to ruptured viscera, gas embolization, coma, seizures, shock, and cardiac arrest. Inhalation of highly concentrated solutions can cause severe mucous membrane irritation and inflammation, pulmonary edema, shock, coma, and seizures; death has been reported. Concentrations exceeding 10% should be considered potentially very toxic.

It is reasonable to ask the question: Why could we possibly need so-called "food grade" hydrogen peroxide solutions?[5] These products have recently been marketed in health-food stores, to be diluted and used in "hyper-oxygenation" therapy for arthritis, cancer, AIDS, etc. Excuse my being judgmental, but in my opinion, that is bull hockey. Please be aware that ingestion of "food grade" hydrogen peroxide has caused death. As of 1994, seven pediatric deaths had been reported, all after ingestion of 35% hydrogen peroxide.[3] All seven presented with respiratory signs and symptoms accompanied by white foam on the lips, apnea, cyanosis, and, ultimately, cardiac arrest. This sequence occurred within minutes of ingestion.

Hydrogen peroxide, to no one's surprise, has been used in hospitals, occasionally with fatal or near-fatal complications. There are several reported cases of extreme morbidity after administration of H_2O_2 either as an enema or per enterostomy to treat neonatal intestinal obstruction due to inspissated meconium. Oxygen embolism has followed the irrigation of infected hernias or anal fissures, compression of an irrigated leg abscess, or the packing of a resected pituitary adenoma. Oxygen embolism has only been associated with the use of peroxide in closed tissue spaces, presumably because oxygen formed there under pressure is driven into veins and lymphatics.[4]

Let there be no misunderstanding, ingestion of even the common 3% H_2O_2 apparently can result in tragedy.[4] A 1994 case report told of a 16-month-old child who ingested 3% H_2O_2 and was found dead in bed 10 hours later. Autopsy revealed frothy blood in the right ventricle of the heart and in the portal venous system. Diffuse interstitial emphysema was present. Gas emboli were found in the pulmonary vessels. Dilated spaces, suggesting air emboli, were noted in the spleen, kidney, and myocardium. The authors remark that gastric catabolism of H_2O_2 produces O_2 and water; when the amount of oxygen evolved exceeds its maximal blood solubility, venous embolization occurs.[4]

Lethal oxygen emboli occur as a result of a rather simple chemical reaction. Hydrogen peroxide, in the presence of the tissue or blood enzyme catalase, breaks down according to the reaction formula:

$$2H_2O_2 \rightarrow 2H_2O + O_2 + \text{heat}$$

Complete metabolism of one cup of a 3% solution of H_2O_2 will quickly produce more than 2.3 liters of O_2 and a uncomfortable amount of heat. This supposedly innocuous stuff is beginning to sound scary.

> "A characteristic sign of hydrogen peroxide use is referred to as the 'Snow White' sign..."

Several reports concern the use of H_2O_2 in intestinal irrigation.[6] In 1954, Olim suggested its use, in combination with a barium enema, to relieve colonic impaction.[7] In 1966, Ellis and Clatworthy recommended using it for colonic irrigation of infants with meconium plug syndrome. Furthermore, hydrogen peroxide has been widely used in hospitals as a cleansing agent and antiseptic agent for contaminated instruments. In 1988, seven patients in one hospital developed hydrogen peroxide enteritis following the use of endoscopes flushed with 3% H_2O_2.[8] Since it can cause mucosal damage and contact injury when applied to the gut wall surface, the enteritis can mimic, endoscopically, acute ulcerative colitis, ischemic colitis, or pseudomembranous colitis.

A characteristic sign of hydrogen peroxide use is referred to as the "Snow White" sign:[8] endoscopy reveals mucosal whitening and frothy bubbles secondary to penetration of H_2O_2 into the epithelial capillaries, with the subsequent production of microbubbles of molecular oxygen causing blanching. Please, oh, please, keep this stuff out of my gastrointestinal tract!

Careful perusal of the literature leads to the conclusion that H_2O_2 in concentrations greater than 3% can be a big problem but that ingestion of the 3% solution is benign. Nay, nay, I say unto you. The latest word on the subject was presented at the Annual Scientific Meeting of the North American Congress of Clinical Toxicology, held in Rochester, New York, in September.[9] I attended the meeting, whose timing was perfect for this paper, and heard a report on the experience with hydrogen peroxide at a Poison Center from January 1992 to April 1995. There were 670 recorded human exposures to 3% H_2O_2 out of 81,126 total exposures to toxins. Where route of exposure was specified, oral ingestion was involved in 516 cases, the eye in 55 cases, the skin in 48 cases, and inhalation in seven. Outcomes were generally benign with 85% having no adverse clinical features and 14% only minor signs/symptoms. But one case involved a three-year-old who allegedly ingested a mouthful of 3% H_2O_2. This child developed multiple gastric ulcers and erosions on the duodenal bulb when examined by endoscope. The authors recommend that all symptomatic patients who ingest 3% H_2O_2 and experience persistent vomiting, or hemetemesis, or both, require a careful follow-up and a consideration of endoscopy. Well, Toto, looks like we aren't in Kansas, anymore!

Making the Best of H_2O_2 Exposure

Before we look at the management of patients who have had toxic encounters with hydrogen peroxide we should mention the use of this agent as an emetic. Three percent H_2O_2 has been used as an emetic by many veterinarians in this country, but a relatively recent paper speaks of its use in people.[10] The authors suggest the possibility of emetic use of H_2O_2 by families who do not have ipecac syrup available for an episode of a toxic ingestion and the nearest medical facility or pharmacy is more than 30 minutes away. They studied 18 children, 11 months to 12 years, given a 15 mL dose of 3% H_2O_2 by mouth. If emesis had not occurred in 15 minutes, a second dose was given. The median volume needed to produce emesis was 30 mL, and the mean time to emesis was 24±13 minutes. There were no residual adverse effects. They suggested a prospective, randomized controlled clinical trial before H_2O_2 could be considered a potentially safe and effective alternative to ipecac. So far, include me out!

There is no magic to managing patients poisoned by hydrogen peroxide. For those ingesting 3% H_2O_2, immediate dilution with water seems reasonable, but not in patients who have already vomited or who have ingested highly concentrated solutions.[5] If gastric distention becomes a problem, decompression by a nasogastric tube seems reasonable. Esophagoscopy may be needed for patients who have swallowed concentrated solutions and who cannot swallow simple liquids. If the eyes have been exposed they should be irrigated with large quantities of tepid water for a minimum of 15 minutes; an ophthalmologic consultation may be needed if irritation, pain, swelling, or photophobia persist, especially in cases of exposure to concentrations greater than 10% H_2O_2. The respiratory tract can be irritated by inhaling sufficient amounts of H_2O_2. Pulmonary edema can occur, sometimes as long as 24 to 72 hours post-encounter.

Here's a good idea: Do not have this stuff in the house, especially not in concentrations more than 3%. If you need to become a blonde, for whatever reason, man or woman, have it done professionally or maybe you will find out the hard way—blondes do not necessarily have more fun.

All Ye Need to Know

If you remember anything about John Keats it is probably some fuzzy memory of his most noted poem, "Ode to a Grecian Urn."[11] You might have such an urn in your home or office. If so, I hope it is not full of hydrogen peroxide. Or maybe you can recall the poem's most famous lines, "Beauty is truth, truth beauty—that is all ye know on earth, and all ye need to know." Really, that's all you need to know? Cool, then I can cancel my subscriptions to *The Star*, and the *National Enquirer*. ❑

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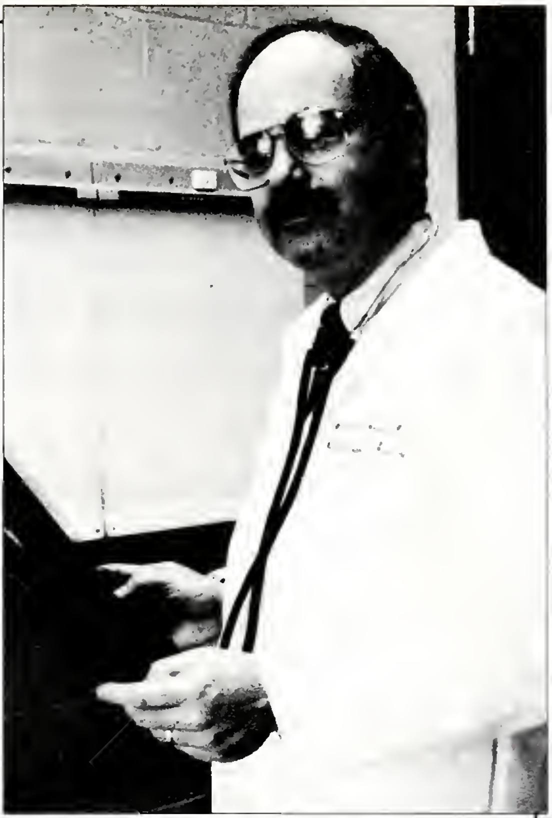

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Comparing Norwegian and American Health

Jante Law vs. Pursuit of Happiness

Thomas A. Cable, MD

The 1994 Winter Olympics showed Norwegian culture to the world. Intensive media coverage focused global attention on the natural beauty and socially progressive society of this small Scandinavian country. In addition, Norway's prominent role in Middle East peace negotiations and the success of its World Cup soccer team are sources of justifiable Norwegian pride. The new-found prominence of Norway in world affairs was a frequent topic for discussion with Norwegian colleagues during a year-long sabbatical I spent there. Inevitably, we compared different aspects of Norwegian and American life, especially the relative health of both societies. This friendly debate led me to probe the comparisons more deeply; I present the results of my analysis here.

First we must define what we mean by "health." A narrow definition—say comparisons of longevity or composite indices—may be misleading. Even statistical resources don't always agree on basic facts. For instance, the anticipated life span of an infant born in Norway in 1993 is 77.4 years,[1-3] and one year less for infants born that year in the United States. But another source gives American longevity at just 75.4 years, a full two years less than the Norwegians.[4] In both cultures, women outlive men by approximately six years (but more Norwegian women are likely to celebrate an 80th birthday than their American counterparts). The United Nations Development Programme uses a "Quality of Life" index based on longevity, average years of schooling and adult literacy rate, and real income. In 1992,[5] Norway ranked third by this index, with Sweden and the US tied at fifth, .002 points behind.

Small differences in measures of longevity and quality of life offer only a limited view of overall societal health. To fully appreciate the health of a society we must explain its culture. The World Health Organization defines health as "a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity." This definition includes qualitative judgments of well-being and social milieu.

In this paper I examine both Norwegian and American health by comparing important lifestyle choices and outcomes within the context of cultural values, social infrastructure, environmental, and economic issues. Periodically, I offer comments (in italics) reflecting my own interpretation of some of the data.

Lifestyle Choices and Outcomes

According to the US Surgeon General, individual lifestyle choices and behaviors account for 70% of disease burden.[6] This implies that one's health, if measured by absence of disease, is largely a result of choices and therefore under one's control. The choices, however, are influenced by society.

Table 1, next page, compares Norwegian and American lifestyle choices. Perhaps most striking is the disparity in smoking prevalence. On the other hand, exercise (or lack of it) is similar in both countries; despite exhortations to the contrary, only about one-third of people in either country regularly pursue some type of aerobic exercise.[7,8] Dietary intake of fiber is greater in Norway, yet estimated daily intake of calories is greater in the US. Both countries have adopted national strategies to lower dietary fat to less than 30% of daily energy intake.

Norwegian alcohol consumption, low by European standards, is slightly less than that of the US. Despite this, Norway has a slightly higher suicide rate. Drugs, alcohol, and tobacco use among the youth in both countries has declined steadily during the past decade.[9-11]

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Surveys aside, my own observation is that outdoor exercise forms a much greater part of daily life in Norway than in America. The high prevalence of smoking seems contrary to the Norwegians' national passion for outdoor exercise, primarily hiking and cross country skiing. In general, a serious commitment to regular exercise precludes the smoking habit though there are always exceptions. In the US, smoking has largely become socially unacceptable and its prevalence is declining. My observations of dietary patterns suggest that Norwegians eat a lighter lunch than Americans. This, combined with a more active lifestyle, may account for the lower prevalence of obesity in Norway (also see Table 3).

Table 1. Lifestyle choices

	Norway	US
Smoking[18,19]	35%	25%
Regular exercise[7,8]	35%	40%
Dietary fat[20,21]	34%	38%
Daily caloric intake[3]	120%	130%
Alcohol intake[3,20]	4.2-6.5L*	4.3-8.4L

*Estimated per capita alcohol consumption, including both taxed and untaxed (home-produced) alcohol.

Table 2, at right, compares mortality outcomes for selected diseases. Total cardiovascular mortality and death rates from coronary artery disease and stroke are all significantly lower in the US. All-cause mortality and cancer mortality are lower in Norway. Cirrhosis mortality is higher in the US, consistent with alcohol consumption patterns. Death rates for pneumonia and influenza are higher in Norway. There is no significant difference in the prevalence of mental illness, including schizophrenia and severe depression. Suicide is more common in Norway, but the absolute difference in rate is small. For unclear reasons, suicide has increased dramatically in Norway in the past 20 years.[12]

Table 2. Age-adjusted death rates per 100,000 people*[1,10,23]

		Norway	US
All cause		478	523
-men	35-74†	1082	1211
-women	35-74†	528	679
Cardiovascular (total)		282	195
Coronary artery disease		155	105
-men		212	129
-women		98	81
Stroke		51	28
Cancer (all types)		75	133
Emphysema		13	19
Pneumonia/influenza		23	14
Cirrhosis		3	9
Diabetes		6	12
Suicides		15	11
Accidents			
-motor vehicle		7	19
-other		17	15

*adjusted to standard US 1940 population
†adjusted to European Standard Population

The greater prevalence of smoking in Norway may account for that country's higher death rates from pneumonia and influenza (and may be expected to increase mortality from emphysema and chronic lung disease in the future). The difference in cardiovascular mortality between the two countries may also be partially explained by current smoking patterns. All-cause mortality is greater in the US as a result of more cancer deaths and a significant number of AIDS-related deaths in the 35-44 age group (see Table 3).

Table 3 compares selected health outcomes. Norway has been spared the AIDS epidemic and the associated increase in tuberculosis and syphilis. Given the high incidence of chlamydia in both countries, the difference in gonococcal infection is unusual but may be the result of Norwegian efforts to reduce gonococcal disease during the past 15 years. The prevalence of severe obesity (body mass index >30) is much greater in the US, consistent with estimates of daily energy intake as a percent of need.

Table 3. Comparison of selected health outcomes[3]

	Norway[1]	US
Abortions/1000 live births[24]	255	346
Infant mortality/1000 live births[26]	7.9	8.9
Percentage of men who are obese*[3]	8.1%	12%
Percentage of women who are obese*[3]	7.6%	15%
AIDS deaths per 100,000 population[10]	1.22	9.6
HIV infection per 100,000[25]	1.4	116.3
Incidence† of syphilis[27]	1.2	20.2
Incidence of gonorrhea[27]	15.3	276.6
Incidence of chlamydia[28]	272.6	197.5
Incidence of tuberculosis[29]	4.0	10.5

*Obesity defined as body mass index >30
†Incidence rates = yearly number of new cases per 100,000 population.

Table 4, next page, shows ratios of the incidence of a variety of cancers in US whites and blacks compared to a baseline rate of 1.00 for Norway. Except for cancer of the lip, kidney and cervical cancers, the incidence of smoking-related cancers (mouth, larynx, esophagus, and lung) is greater in the US. Liver and breast cancers are more common in the US as well and may reflect greater alcohol consumption. In addition, those cancers

Table 4. Relative risks of cancer in Americans compared to Norwegians aged 35-64[30]

	MEN			WOMEN		
Cancer type	**Norwegian**	**US Whites**	**US Blacks**	**Norwegian**	**US Whites**	**US Blacks**
Lip	1.00	0.74	0.04	1.00	0.60	0.20
Mouth	1.00	1.95	3.40	1.00	2.66	3.25
Larynx	1.00	2.00	3.00	1.00	5.60	10.00
Esophagus	1.00	1.60	7.80	1.00	1.80	7.40
Lung	1.00	1.85	3.04	1.00	2.87	3.04
Colon	1.00	1.37	1.43	1.00	1.07	1.23
Liver	1.00	1.50	2.95	1.00	1.16	1.66
Kidney	1.00	1.03	0.93	1.00	1.04	1.01
Melanoma	1.00	0.97	0.02	1.00	0.64	0.03
Prostate	1.00	1.74	2.68			
Breast				1.00	1.60	1.18
Cervix				1.00	0.58	0.90
Uterus				1.00	1.30	0.57
Ovary				1.00	0.80	0.42
All sites	1.00	1.33	1.60	1.00	1.22	1.02

thought to be related to dietary fat (breast, colon, and prostate) have a greater incidence in the US. This may reflect the higher ratio of dietary fat to fiber in the US where daily fiber intake is lower and fat intake is slightly higher than in Norway. The increased incidence ratio of uterine cancer in American women is consistent with the greater prevalence of obesity in American society. Norwegian women develop ovarian cancer slightly more often than white Americans, but more than twice as often as their black American counterparts, who have a similarly lower risk of uterine cancer. The incidence of melanoma is 1.3-1.5 times greater in Norwegian women than in white American or Norwegian males, although the ratio in white Norwegian and American males is equal. Finally, except for black American women, the incidence for cancer at all sites is greater in the US population.

The higher incidence of "smoking-related cancers" in the US is somewhat surprising given the lower current prevalence of smoking. It may reflect the long latency period for developing cancer. Based on current smoking patterns in the two countries, the difference should narrow in future decades.

Cultural Values

Cultural values, which evolve from a nation's heritage, influence citizens' daily lives. Both Norway and the US are western democracies, but there are differences—the most striking being the emphasis on the good of the group versus the individual. Norwegian society is based on a doctrine of solidarity, and other things being equal, individual Norwegians will defer to group interests. American society, exemplified by the Bill of Rights, attempts to protect the individual from the group. Norway's small (four million), homogeneous population tends to be a manageable group with a common vision; America's "melting pot" population of 250 million gains strength from diversity but also has many, sometimes conflicting, visions.

Both democracies are being tested in today's world. At present there is a call for greater personal responsibility in Norway and for more social responsibility in the US. The fabric of Norwegian solidarity is fraying slightly under the strain of recent immigration and the need to assimilate people of different cultures into a society with many social benefits. American social consciousness is currently being re-examined. For example, restructuring of the health care system is an attempt to distribute medical care more evenly, and tort reform aims to restrain the individual versus the group.

Closely related to the ethic of individual versus group is the Norwegian concept of "Jante Law" and the American constitutional guarantee of the "Pursuit of Happiness." Both are passionately defended as core components of the national psyche. Roughly speaking, Jante Law asserts that individuals are no better than their neighbors and therefore should not attempt to rise above the crowd or draw attention to themselves. To do so would violate group norms. "Pursuit of Happiness" permits individuals to maximize personal satisfaction as long as doing so causes no harm to others. Taken to their extremes, Jante Law may stifle individual creativity and incentive while Pursuit of Happiness may promote social callousness. These differences in national ethos may help us understand the more litigious environment in the US, where there is a tendency to assign individual blame.

The balance between work and play also characterizes nations. The work ethic is clearly very different between the two countries. Although overly simplistic and stereotypical, there is some truth to the adage that "Norwegians work to live while Americans live to work." Taken to extreme, neither lifestyle is flattering.

During my sabbatical, I discovered that Norwegians find it difficult to understand the American custom of keeping family pictures at work. Norwegians prefer to spend less time at work in order to have more time with family. To a Norwegian, "good living" means being outdoors where they have an appreciation bordering on reverence for nature. Group ethic ensures access to nature for all. To an American, "good living" means many different things, reflecting the great social diversity of the country.

Social Infrastructure

Norway has benefited from relative geographic isolation, and in recent decades, from the discovery of North Sea oil. New-found wealth has brought Norway the ability to care for all its citizens and still provide substantial foreign aid to developing countries. Immigration policies have ensured a relatively homogeneous population and there is no "border pressure" from a developing country to contend with.

Table 5, at right, compares crime statistics for the two countries. The overall rate of US homicides is six to seven times that in Norway, and gun-related homicides are 12-fold higher.[13,14] Norway tightly regulates ownership of handguns; most owners are members of sporting gun clubs. Police are quickly notified if a Norwegian drops membership in one of these clubs. The relative incidence of crime in the two countries is reflected in the sizes of their prison populations: 88 out of every 100,000 Norwegians are in prison, but 286 out of every 100,000 Americans are incarcerated.

Although crime and drug problems exist in Norway, they are at least several orders of magnitude lower than in the US. Indeed, the average Norwegian police officer does not even wear a gun. With the exception of a few urban areas, one feels safe on the streets or in the woods, day or night, city or town. In marked contrast, citizens are rightfully fearful in many US neighborhoods. Especially disconcerting to Norwegians (and many Americans) is the availability of guns, especially handguns, in the US, a result of the individual's "right to bear arms."

The Norwegian government's budget clearly favors social programs over the military, which receives just 3.3% of the gross national product (GNP). One year of military service is required of all young men. In contrast, defense spending in the US consumes more than 20% of the GNP and results in constant tension and debate about social priorities. Furthermore, the Clinton administration's recent proposal of universal national service is not yet a reality.

Universal health care is the cornerstone of Norway's social democratic society. Medical care is free from birth to age seven, and combined with extensive maternal leave, helps children and young families get a good start in life. Nevertheless, Norwegians spend less than half as great a percentage of their GNP on health care as Americans do. Norwegians seem to see health and education as overlapping spheres, and there is ready provision and coordination of acute and preventive care (including dental care), especially for elementary school-age children. The situation in the US is quite the opposite. Notwithstanding the presence of school nurses, there is a clear demarcation between medical and educational systems in the US.

Table 5. Crimes per 100,000 population aged 15-67[1,31]

	Norway	US
Murders	1	10
Assaults	279	451
Rapes	11	44
Robberies	34	269
Thefts	5608	5002

The front-loading of social spending in Norway stands in marked contrast to the US. Powerful lobbies such as the American Association of Retired People (AARP) ensure that their members receive a disproportionate share of available resources compared to children.

Government tariffs make automobile ownership more difficult for Norwegians. For ex-ample, a four-door Honda Accord that would cost $15,000-$20,000 in the US is the equivalent of $35,000 in Norway. Consequently, Norway has a very extensive and coordinated public transportation system. The US, having no such fully coordinated transportation system, depends largely on cars with their attendant pollution. If one does drive in Norway, the risk of dying on the highway is about half that in the US.

Environmental Issues

Pollution is a problem for all societies. Norway has several natural advantages that enable them to maintain a nearly pristine environment. First, since people are polluters, and since the infrastructure of modern society also results in pollution, it stands to reason that fewer people mean less pollution. In Norway there are just 13 people per square kilometer compared to 28 in the US. Second, Norway, a net exporter of energy, has plenty of hydroelectric power which is cheap and clean. There are no nuclear power plants in Norway. The US, on the other hand, is a net energy importer which depends on polluting hydrocarbons to generate electricity. Finally, though the weather in Norway can be harsh, Norwegians are spared the annual tornadoes, hurricanes, floods, mud slides, forest fires, and earthquakes that plague much of the US. These natural disasters take a toll in lives and stress the survivors, many of whom are scarred for life.

Economics

The health of a nation and its people is clearly related to the prevalence of poverty. Both Americans and Norwegians have high per capita average incomes and relatively low unemployment rates despite the current global economic slowdown. Although both countries are affluent, averages can be misleading. Because the US lacks an extensive social services net, 20% of children live in poverty, compared to Norwegian society where wealth is more evenly distributed.[15]

If individual health is related to economic circumstances, so is the health and viability of a nation. The US government's national debt, more than $4 trillion, was a major political issue in the last presidential campaign. The current Norwegian national debt is $27 billion. When adjusted to account for the greater US population, the Norwegian debt is comparable to $1.62 trillion; US debt is approximately 60% of GNP; Norwegian debt is 27%.

> *Both countries have significant debt load but Norway is currently in better shape. Although the US is working to get its economic house in order, it has yet to rid itself of deficit spending. Thus the debt load continues to grow. The national debt is a source of stress because citizens worry about the kind of country and standard of living they will leave to future generations. The Norwegians, on the other hand, have reduced their national debt by almost $12 billion over the past three years. Despite this encouraging trend, the Norwegians have economic worries of their own. An almost unspoken fear is what will happen if and when the North Sea oil disappears. There is debate over membership in the European community and its implications for Norwegian trade and autonomy.*

Final Thoughts

I found it challenging to examine American and Norwegian health from a broad perspective. I had hoped to answer my original question "Are Norwegians healthier than Americans?" The social and ethnic diversity of the US, coupled with its economic disparities, makes it much more difficult to picture an "average American" than an "average Norwegian." Several points are worthy of further reflection.

It is clear that the youth of America are under assault from epidemic exposures to both the human immunodeficiency virus (HIV)[16] and violent crime,[17] the latter often random and unexplainable. Because of these threats, America has lost many young people and their potential productivity. The high infant mortality rate among blacks is a clear indicator of trouble in American culture.

Lifestyle-related diseases are common in both countries. The decline in smoking prevalence in the US during the past two decades has contributed at least partly to lower cardiovascular mortality, but cancer incidence and mortality remain much higher than in Norway. This may be due to several factors, including diet, obesity, and environmental toxins. The average Norwegian suffers more from the relatively acute effects of smoking—pneumonia and influenza. Norwegians' higher cardiovascular mortality (including stroke and coronary deaths) may also be related to smoking prevalence. Barring some unknown protective factor(s), we can predict that the incidence of smoking-related cancers will increase in coming decades in Norway.

Social stratification is much more obvious in the US. Here the rich mostly enjoy excellent health and are socially advantaged, but on a national scale those advantages are increasingly negated by the social stresses, such as crime, borne by the poor and disadvantaged. Such socioeconomic disparity is not prevalent in Norway; the average Norwegian has a significant environmental and social infrastructural advantage from birth. The Norwegian investment in children bodes well for its future. My perception is that most Americans would find the Norwegian lifestyle less stressful, less complicated, less uncertain, and less fearful. That leads me to conclude that Norwegian society (smoking excepted) is significantly healthier than its contemporary American counterpart.

Americans are challenged to make the social changes necessary to strengthen our "melting pot" culture through a more equitable distribution of wealth and a greater concern for the disenfranchised. I believe this would greatly reduce stress on the American psyche and thereby promote health. Norway's challenge is to balance an expanded role in world affairs and preserve national solidarity in the face of increasing ethnic diversity that may strain both resources and tolerance. Given the immense human and natural resources in both countries, I am optimistic that both can meet these challenges. ☐

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Carolina Physician's Bookshelf

Taking Care: The Legacy of Soma Weiss, Eugene Stead and Paul Beeson

Hollingsworth, William. San Diego, CA: Medical Education and Research Foundation, 1994, ISBN 1-57087-038-1, $19.95

Reviewed by Marvin Rozear, MD, Division of Neurology, Duke University Medical Center, Durham

In the memory of individuals, and in the collective memories of families and communities, there is always a golden time, when things were simple, honest, uncluttered; a time when you could tell the good guys from the bad; a time you yearn for but can never get back. Such a time for the American medical community was the mid portion of the 20th century. Its metes and bounds are obviously undefinable; they largely depend, like beauty, on the eye of the beholder. For most (as Hollingsworth explains in a succinct and enlightening history of American medicine, which, although he weaves it into this triple biography, in itself is worth the price of the book), they would begin with Abraham Flexner: the creation of order in medical education and all its ramifications, shortly before World War I, and end with the massive dislocations and realignments of the present decade. They amount to 70, 80 years; maybe fourscore and seven; the lifespan of a man or woman.

These golden times have flaws: they are always better in retrospect (people in the golden times had their golden times also, for which they yearned). Carly Simon sang "...these are the good old days." Besides, as one of the subjects of this book has observed, the past doesn't exist, there is only the present. Time spent ruminating over the past is time wasted. Yet it is instructive to look back from time to time and see how we got here. Even Gene Stead, strident proponent for the Present, has a large collection of antique gadgets in the lake house that Hollingsworth alludes to in his essay.

Using a very intense, personal approach, slipping gracefully and almost unnoticed between first- and third-person in a homespun style, Hollingsworth has adduced and organized a mass of information to argue that Soma Weiss, Eugene Stead, and Paul Beeson, so very different in origin and style, represented the best times, pushed the system to its limits, and developed a message that should not be forgotten. Weiss, the immigrant (not only was he not crippled by his accent, but he used it to comic effect and to enhance his delivery and effectiveness); Beeson, the son of a Montana physician; and Stead, the son of a deep-South traveling salesman, all came from such disparate origins that it seems incredible they could have converged at the pinnacle of the same endeavor, shaping American medicine for their time and forever. Besides unyielding honesty and unquenchable curiosity, the main trait they shared was the ability to inspire or influence their associates and students to achieve and produce beyond what anyone thought was possible. Thus they extended their minds and personalities to great distances in space and time. Hollingsworth explores the character of each man in fascinating depth and summarizes the main aspects in a valuable synthesis. This section would be a valuable primer to all who assume leadership roles in medicine.

Included are bibliographies, dates, testimonials, and narrative, set into a chronology sufficient to prevent confusion. Hollingsworth explores the depth of the relationship between the affable, magnetic Weiss and his two protegés. But most enjoyable are the hundreds of personal glimpses into the experiences that went into the formation and expression of these memorable characters. For instance: "From about ages 11-15, Gene [Stead] accompanied his father on his sales journeys during the summers. He recalls the time as being rather idyllic, as he and his father drove and camped in the woods, preparing their meals and enjoying nature. Father Stead never left his religion behind, so the games they played as they drove along were such things as thinking up biblical verses for each letter of the alphabet.... The father's religion meant little to the son, but [when back at home, in Atlanta] Gene went to church each week with his father, explaining, 'It didn't do me any harm, and it gave my father a lot of pleasure.' " The book is a treasure trove of recollections by the subjects and by others, much apparently obtained by Hollingsworth through personal interviews or gleaned from obscure sources. He has done us a favor to amass this wealth of information and nostalgia.

From the development of American medicine to the concentration of training and research at centers of excellence, such as the Thorndike Memorial Laboratory, to the dispersion of Weiss-Stead-Beeson philosophy from Boston City Hospital and the Peter Bent Brigham to Yale, Emory, Duke, Oxford, and then to scores of other institutions, Hollingsworth traces the path of the philosophy and the physicians who transmitted it, right down to the present, to people that just about every *Journal* reader will know. In fact, if nothing else, this is an intensely personal book. Some readers will find themselves in it.

I recommend this book to anyone who wonders how we got to this uncertain point, or how it was when it was almost perfect. As medicine grows more businesslike and less personal, the appeal and message of this book and of Weiss, Stead, and Beeson will surely increase. ❑

A Way of Thinking: A Primer on the Art of Being a Doctor
Essays by Eugene A. Stead, Jr., MD; Haynes, Barton F, editor
Durham, NC: Carolina Academic Press, 1995, ISBN 0-89089-753-0, $24.95

Reviewed by Edward C. Halperin, MD, Journal *Deputy Editor, and Professor and Vice Chair, Department of Radiation Oncology, Duke University Medical Center, Durham*

About 12 years ago I was walking between the two major buildings of Duke University Medical Center. I was wearing an anonymous suit (I almost never wear a white coat) and, as far as I was concerned, was assiduously minding my own business. A physician whom I judged to be in his early- to mid-70s fell into stride with me. He was about my height and was wearing a long white coat.

With absolutely no hint of introduction my new-found walking companion sharply demanded, "Who are you?"

"My name is Ed Halperin. I'm one of the newest members of the faculty," I replied. It's not clear to me in retrospect why I felt compelled to answer this saucy fellow—perhaps it was out of a general respect for age.

"What do you do?" my inquisitor continued.

"I'm a radiation oncologist," I answered. The gentleman looked at me in a piercing way.

"The daughter of a man who worked for me at Emory married a radiation oncologist. Do you know him?" the older man asked.

"Sir, you're going to have to give me a little more to work on than that," I replied. "How about the man's name?"

"There can't be that many radiation oncologists. I would have thought you knew him," he countered. The conversation was certainly not coming to any sort of satisfactory conclusion. I tried a block and parry.

"And who might you be?" I queried.

"My name is Stead and I'm one of the oldest members of the faculty," he stated. By this point we had reached the door of the North building of the hospital, and the white-coated gentleman plunged through the door and was gone—leaving me standing in the lobby. I clearly must have looked puzzled because my friend and colleague John Falletta came walking up to me with a concerned look.

"Ed, what's the matter?" he asked soothingly.

"I've just had a strange experience." I proceeded to tell the tale of the previous two minutes.

"Typical," John answered and walked off.

In the dozen years since my abrupt introduction to Eugene A. Stead, Jr., I have come to know the man better—almost entirely in my capacity as associate, and subsequently, deputy editor of the journal you are now holding in your hands. I have also acquired a passing knowledge of Stead's view of medicine by reading a collection of reminiscences published under the title of E.A. Stead, Jr.: *What This Patient Needs Is A Doctor* (edited by Wagner, Cebe, and Rozear, Durham: Duke Hospital, 1981), attending lectures he has given before Duke's Department of Medicine and the Durham-Orange County Medical Society, and by hearing the stories told by his former house officers—a group of individuals now found among the ranks of the senior faculty at Duke.

Stead was born in Atlanta in 1908 and received his BA degree and MD from Emory. He was a medical intern at the Peter Bent Brigham Hospital in Boston from 1932 to 1933. Between 1933 and 1937 he held positions as a research fellow at Harvard, a surgical intern at the Brigham, and as medical resident at Cincinnati General Hospital. From 1937 to 1941 he was an assistant in medicine on the Harvard service at Boston City Hospital and a faculty member in medicine back at the Brigham. In 1942, at age 33, he returned to Emory as professor and chairman of medicine and became dean at Emory in 1945. He joined the faculty at Duke in 1947 as chairman of medicine. He stepped down as chairman in 1967. Stead has been president of the Association of American Physicians, the American Society for Clinical Investigation, and editor of *Circulation* and the *North Carolina Medical Journal* (1983-1992). He is credited with originating the physician's associate program at Duke and with training a large number of leaders in academic medicine.

In *A Way of Thinking*, we receive a survey of Stead's views on medical education, his mentors and role models, and the nature of the doctor-patient relationship. The editorial hand of Barton Haynes, the current Chairman of Medicine at Duke is invisible—the sign of exceptional editing. Stead's voice comes through unfiltered. His views on medicine range from the outrageous ("Most basic science education is irrelevant to the practice of clinical medicine,") to the quaint (A discussion of disease completely devoid of cyclins, secondary messengers, cell signaling mechanisms, proto-oncogenes, apoptosis, and Northern, Southern, and Western blots), to the wise ("The purpose of speech is to paint a picture in the listener's mind"), to the paternal. There are equal doses of vignettes about Soma Weiss, William Castle, and Jack Meyers; philosophical discussions of the role of liberal arts in pre-medical education; and attempts to fix a place for research in medical education.

Stead aficionados will find much to treasure in this book. I suspect it will become a favorite gift item for graduating medical residents and starting medical students. The book will also appeal to the significant number of former Stead medical students and house officers. There will certainly be smiles of recognition from these alumni as favorite sayings and thoughts, tucked away in memory, are discovered in print. To the vast majority of readers who have either no or minimal knowledge of Eugene Stead, Jr., this little volume will be appreciated for its snippets of wisdom and its highly personal description of the practice of medicine in the mid-20th century. Our admiration is directed toward Dr. Stead for a remarkable career and our appreciation is extended to Dr. Haynes for a fine job of compilation and editing. ☐

Ship's Doctor

Riley, Terrence. Annapolis, MD: Naval Institute Press, 1995, ISBN 1-55750-721-X $29.95

Reviewed by Richard T. Welham, MD, Captain, MC, USN Retired, Martinsville, Virginia

Having spent two years as a flight surgeon with Carrier Air Wings One and Eight, *Ship's Doctor* brought back memories of my experience when I, too, spent "two years before the mast."

The literary style of the book makes it read like a personal journal, as the story line and many of the characters seem to be just passing through and are not really developed in great depth. This style does not suffer as much to someone who has "been there, done that" as it would to someone who has never been exposed to carrier operations. Much of the book is devoted to the daily functions of the medical department, with its few victories and many frustrations. There are only occasional first-hand descriptions of flight operations, the wonders of night catapult launches, and the nerve-wracking night recoveries. Readers looking for action-packed pages filled with aviation stories definitely will not find them in this book. But Dr. Riley does develop the personalities of not only his commanding officers, but the other physicians and corpsmen in the medical department of the USS Forrestal as well, and the amazing assortment of shipmates who become their patients.

A glance at the book jacket, with the author's picture and short bibliography, hints at some untold stories. Captain Riley is working on his "fifth deck" of medals, and his other decorations include the Naval Flight Surgeon's wings and the Surface Warfare device. It appears that sometime during a particular naval cruise, he qualified to "stand underway watches" on the bridge of the USS Forrestal; actually driving the ship, in addition to his medical responsibilities. And among the book's photographs is one of Dr. Riley launching an A-6 Intruder off the port-side catapult. These are all unusual occupations for the ship's doc, yet they reveal his enthusiasm to do it all.

I remember standing on the flight deck of the USS Shangri La, with family and children on the pier. The crew had taken in all the lines and the ship was about 20 feet from the pier, leaving for a nine-month deployment. One of my aviators, an A-4 pilot named Benny Hassell, turned to me and said, "Sure has been a long cruise, hasn't it, Doc?" Pondering that, and considering the approaching nine-month separation, I turned to him and said, "It sure has, Benny." It's obvious Dr. Riley took his responsibilities as ship's doctor seriously; and, to be honest, it would have been a pleasure to serve with him. ❑

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Continued on page 638

CME Calendar

February 7-10
International Conference on Physician Health
Uncertain Times: Preventing Illness, Promoting Wellness
Place: Sheraton San Marcos, Chandler, AZ
Credit: up to 23 hours Category 1, AMA
Fee: call for info
Info: Elaine Tejcek, 312/464-5073, 800/621-8335, or fax: 312/464-5841 (also see page 639)

February 8-9
Update: Research and Treatment of Sex Offenders
Place: Howard Johnson Plaza Hotel, Fayetteville
Fee: $140; partial attendance fees available
Info: Dennis Goodwin, Cumberland Hospital of Cape Fear Valley Medical Center, 3425 Melrose Road, Fayetteville 28304, 800/659-5546

February 9, 16, 23, and March 1
Epidemiology and Prevention of
Vaccine-Preventable Diseases
Place: Public Health Training Network videoconference sites
Credit: 14 hours Category 1, AMA
Info: Pam Reese, UNC School of Public Health, 919/966-1104, e-mail: immunization@ sophia.sph.unc.edu

March 1-3
3rd Annual Pinehurst Medical Symposium
Place: Pinehurst Resort and Country Club, Pinehurst
Credit: 7 hours Category 1, AMA
Fee: $50-$540 (call or write for details)
Info: Suzanne Riley, Moore Regional Hospital, Educational Services, P.O. Box 3000, Pinehurst 28374, 910/215-1585

March 2-3
Violence: Implications for Clinical Practice
Place: Royal Sonesta Hotel, New Orleans, LA
Credit: 14 hours Category 1, AMA
Fee: $225 APA members; $275 non-member MDs
$250 non-MDs; $150 residents and fellows
Info: Maria Gorrick, American Psychiatric Association, 202/682-6145, fax: 202/682-6102, or e-mail: mgorrick@psych.org

March 14-17
North Carolina Medical Society Spring Conference
Place: Washington Duke Inn & Golf Club, Durham
Info: Alan Skipper, NCMS, 800/722-1350 (in NC), or 919/833-3836

March 15-16
Neurology for the Primary Care Provider
Place: Winston-Salem
Credit: 11 hours Category 1, AMA
Info: Division of CME, Bowman Gray School of Medicine, 910/716-4450 or Physician Access Line, 800/277-7654

March 22-23
9th Annual Surgical Symposium and Harrill Lecture
Place: Winston-Salem
Credit: 9 hours Category 1, AMA
Info: Division of CME, Bowman Gray School of Medicine, 910/716-4450 or Physician Access Line, 800/277-7654

March 25-28
Alton D. Brashear Postgraduate
Course in Head and Neck Anatomy
Place: Medical College of Virginia, Richmond, VA
Credit: 44 hours Category 1, AMA
Info: Dr. Hugo R. Seibel, Department of Anatomy, P.O. Box 980709, Medical College of Virginia, Richmond, VA 23298-0709

April 1-2
20th Annual Symposium of the
UNC Lineberger Comprehensive Cancer Center:
New Insights into the Genetic Basis of Cancer
Place: Friday Center, UNC-Chapel Hill
Info: Sara Rimmer, 919/966-3036

April 26-27
Practical Pediatrics
Place: Winston-Salem
Credit: 9 hours Category 1, AMA
Info: Division of CME, Bowman Gray School of Medicine, 910/716-4450 or Physician Access Line, 800/277-7654

May 15-17

Carolinas Medical Center Symposium 1996

Place: Charlotte Convention Center
Credit: up to 24 hours Category 1, AMA
Fee: MD/PhD/DDS/DMD: $150 full conference, $100 single day; RN/RPh/Allied and Public Health: $75 full conference, $50 single day
Info: Mary Anne Cox, CME Coordinator, CMHA Office of CME, 1366 E. Morehead St., Charlotte, NC 28204, 704/355-8631 or 800/562-7314

May 29-June 1

20th Annual Update: Cardiology for the Primary Physician

Place: Charleston, SC (during Spoleto Festival)
Info: American College of Cardiology, 800/257-4739

June 5-9

Comprehensive Internal Medicine Board Review Course

Place: Winston-Salem
Credit: 32 hours Category 1, AMA
Info: Division of CME, Bowman Gray School of Medicine, 910/716-4450 or Physician Access Line, 800/277-7654

July 29-August 2

25th Annual Emery Miller Medical Symposium

Place: Myrtle Beach, SC
Credit: 20 hours Category 1, AMA
Info: Division of CME, Bowman Gray School of Medicine, 910/716-4450 or Physician Access Line, 800/277-7654

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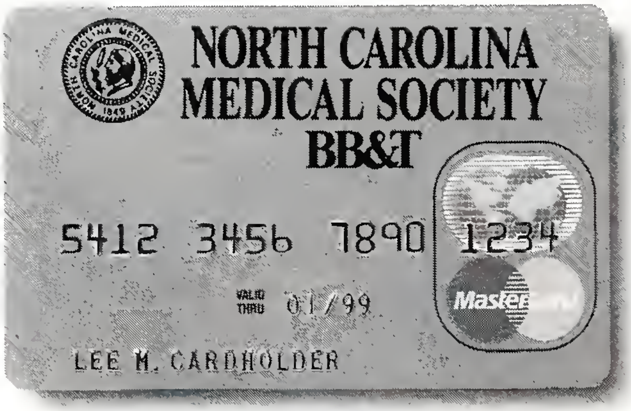

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Pre-Conference Institutes will include:

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Update on Psychiatry: Morton Silverman, MD, - *Suicide;* Dominic Ciraulo, MD - *Newer Antidepressant Drugs and Drug Strategies;* Eberhardt Uhlenhuth, MD - *Anxiety Disorders: Changes in Diagnoses and Management*

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North Carolina Medical Journal

Volume 56, January 1995 - December 1995

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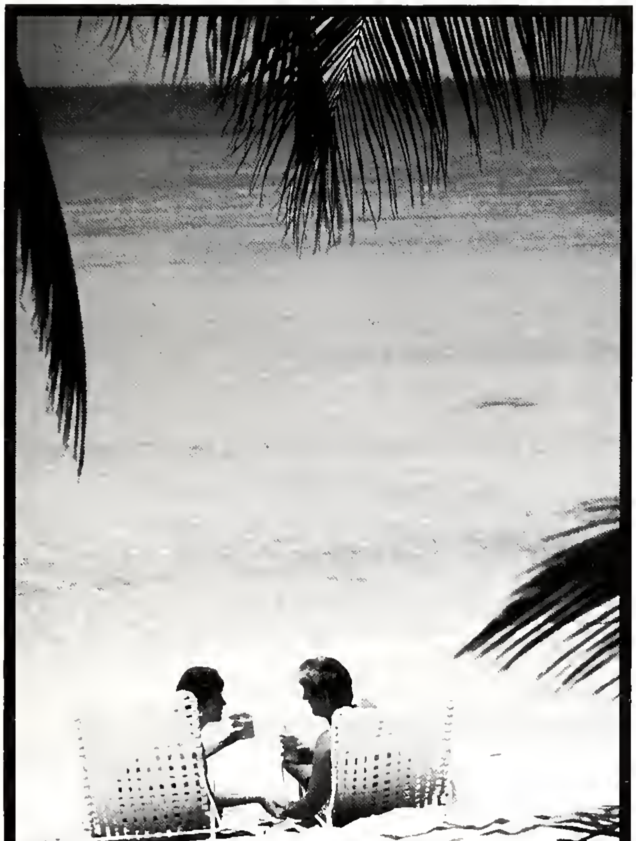

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"Random Thoughts and Barbs"

Every tooth in a man's head is more valuable than a diamond.
—*Cervantes*

I wonder how far Moses would have gotten if he had taken a poll in Egypt.
—*Harry Truman*

It is more shameful to mistrust one's friends than to be cheated by them.
—*Rochefouçald*

There are only two fields where amateurs feel they are better than professionals. One is the military strategy and the other is prostitution.
—*Dwight D. Eisenhower*

Tragedy is when I cut my finger. Comedy is when you fall into an open sewer.
—*Mel Brooks*

All happy families resemble one another. Each unhappy family is unhappy on its own.
—*Leo Tolstoy*

Fleas are like the rest of the universe: a divine mystery.
—*Anatole France*

Pat Robertson wants to get prayer back in school to free churches for their main job of raising money.
—*Mark Shields*

Fax aphorisms to Dr. Sexton at 919/684-8358

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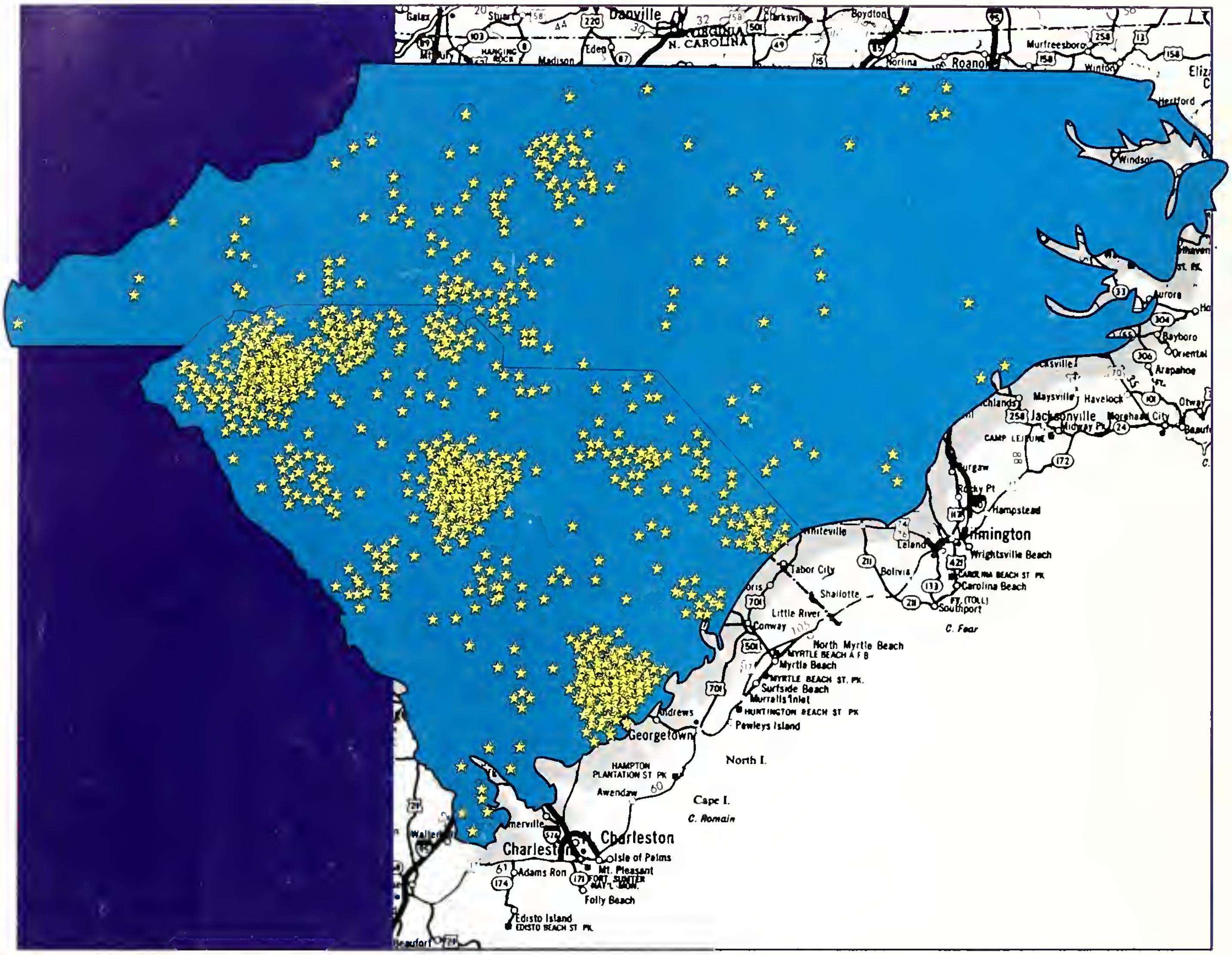

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